

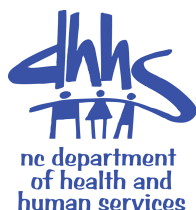
THE BURDEN OF SUICIDE IN NORTH CAROLINA

February 2011

**Injury Epidemiology and Surveillance Unit
Injury and Violence Prevention
North Carolina Division of Public Health**

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February 2011



State of North Carolina
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Department of Health and Human Services
Lanier M. Cansler, Secretary

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INTRODUCTION

Suicidal behavior is a serious and persistent public health problem with devastating effects on victims, families and communities. Suicide is the 11th leading cause of death in the U.S. (Centers for Disease Control and Prevention (CDC), 2010) and ranks among the top five leading causes of death for ages 15 to 44 years in North Carolina (N.C. State Center for Health Statistics, 2010). More than 34,000 Americans (CDC, 2010) and more than 1,000 North Carolinians die from self-inflicted injuries each year. However, suicides represent only a fraction of the outcome of suicidal behavior. Non-fatal self-inflicted injuries from suicide attempts requiring hospitalization or an emergency department visit are much more common than fatal self-inflicted injuries. Each year, more than 376,000 people in the U.S. (CDC, 2010) and more than 8,000 residents of North Carolina receive emergency department treatment for self-inflicted injuries. Furthermore, specific groups in the population, such as youth and young adults, older adults, and military veterans are more vulnerable to suicide and self-inflicted injury. In addition to death and serious injury, suicidal behavior often produces a heavy burden of medical expenses, disability, loss of wages and productivity, and feelings of guilt, anger and depression in victims and family members.

This report provides an overview of the public health burden of suicide and self-inflicted injury in North Carolina residents for ages 10 and older overall and for the specific groups of youth and young adults (ages 10 to 24 years), older adults (ages 65 or older), and military veterans (ages 18 or older). The objective of this report is to provide state and local health officials, public educators, policy-makers, researchers, and the public with information to identify those who are most susceptible to suicidal behavior and to guide the prioritization of resources, development of strategies and evaluation of programs for suicide prevention in North Carolina. Recommendations for suicide prevention are summarized at the end of this report.

To evaluate the scope of suicidal behavior in North Carolina, an analysis was performed of suicides and self-inflicted injury hospitalizations from 2004 to 2008 and self-inflicted injury emergency department visits from 2006 to 2008 with stratification by demographic characteristics of victims. The analysis included suicide methods and self-inflicted injury types, circumstances surrounding suicides, toxicology testing of suicide victims, and injury location resulting in suicide using North Carolina – Violent Death Reporting System (NC-VDRS) data. Suicide trends from 1999 to 2007 and estimates of years of potential life lost from suicide during 2004 to 2007 in North Carolina were compared to U.S. data using CDC's Web-based Injury Statistics Query and Reporting System (WISQARS). Self-inflicted injury hospitalization charges from 2004 to 2008 in North Carolina were calculated to provide an estimate of the economic burden of suicidal behavior resulting in hospitalization. Survey responses from the N.C. Youth Risk Behavior Survey (YRBS) in 2005, 2007 and 2009 were evaluated to assess the frequency of suicide ideation and attempts among North Carolina high school students.

All rates in this report are expressed per 100,000 persons in the N.C. population or subgroup over the specified time. Rates should be interpreted with caution, particularly for small numbers of cases (i.e., less than 20). Small numbers have substantial variation over time (i.e., a large standard error). The wider the 95 percent confidence interval (i.e., the greater the difference between the lower and upper bounds of the confidence interval), the less accurate the rate is; therefore, more caution should be employed when using the data. Refer to the Glossary for definitions of suicides, self-inflicted injury hospitalizations and self-inflicted injury emergency department visits and explanations of crude and adjusted rates. The data sources analyzed and methodology used for this report are defined in Appendix A and Appendix B. Suicide prevention resources are listed in Appendix C.

EXECUTIVE SUMMARY

The overall burden of suicide and self-inflicted injury in North Carolina was demonstrated by the following measures:

- The North Carolina age-adjusted suicide rate remained relatively unchanged from 1999 to 2007 and exceeded the U.S. rate each year.
- Among residents of North Carolina, there were a total of 5,366 suicides (14.0 per 100,000 persons) and 29,091 self-inflicted injury hospitalizations (76.0 per 100,000) during the five-year period from 2004 to 2008, and a total of 24,867 self-inflicted injury emergency visits (106.3 per 100,000) during the two-year period from 2006 to 2008.
- The age-adjusted rate of years of potential life lost from suicide per 100,000 persons in North Carolina from 2004 to 2007 was 284 years, slightly higher than the U.S. rate of 267 years.
- Suicide resulted in more years of potential life lost than other common causes of early death in North Carolina, including homicide, congenital abnormalities, cerebrovascular disease, human immunodeficiency virus (HIV) and diabetes mellitus.
- Hospitalization charges for self-inflicted injuries in North Carolina totaled \$315 million from 2004 to 2008.

Suicide and self-inflicted injury trends in North Carolina differed by gender and age, as follows:

- Males were 3.5 times more likely to die from suicide than females; whereas, females were 1.4 times more likely to be hospitalized and 1.3 times more likely to visit an emergency department for self-inflicted injury than males (Figure 1).
- Adolescents between ages 10 and 19 had the lowest suicide rates, and adults had similar suicide rates across age groups. The self-inflicted injury hospitalization rate was highest between ages 15 and 44, while the self-inflicted injury emergency visit rate peaked for ages 15 to 24 and declined with older age. Adolescents and young adults had considerably higher rates of suicidal behavior resulting in non-fatal injury than in death; conversely, older adults had similar fatal and non-fatal self-inflicted injury rates (Figure 2).

Figure 1: Rate of Suicides (2004-2008), Self-Inflicted Injury Hospitalizations (2004-2008) and Self-Inflicted Injury Emergency Visits (2006-2008) for Ages 10 or Older in North Carolina by Gender

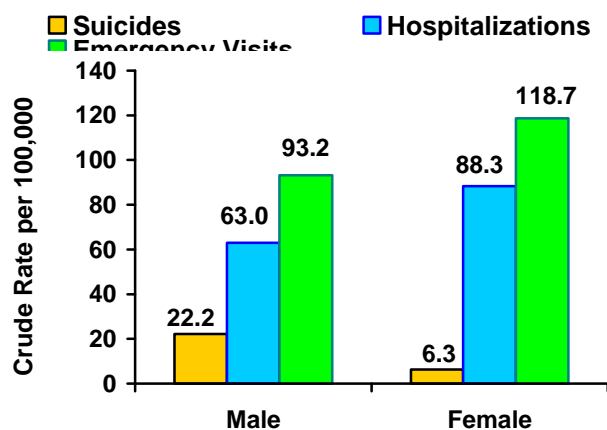
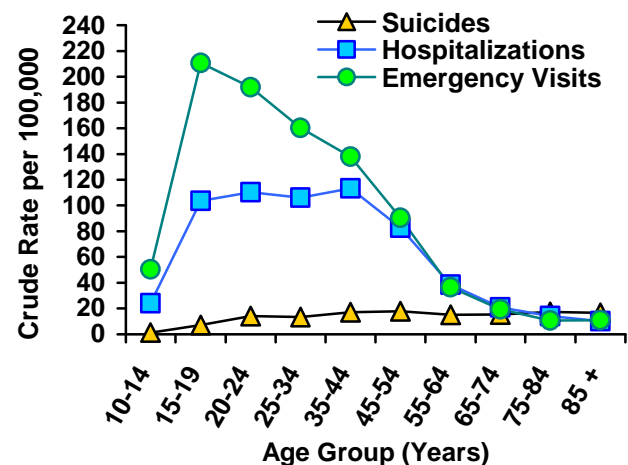


Figure 2: Rate of Suicides (2004-2008), Self-Inflicted Injury Hospitalizations (2004-2008) and Self-Inflicted Injury Emergency Visits (2006-2008) for Ages 10 or Older in North Carolina by Age



Stratification of suicide and self-inflicted injury trends by both gender and age showed:

- Males had a higher suicide rate than females across all ages with an increase with older age and a peak of 46.7 per 100,000 for males aged 85 or older (Figure 3 and Figure 4).
- Females had a higher self-inflicted injury hospitalization rate than males for ages 10 to 74 with a peak of 136.9 per 100,000 for females aged 15 to 19 and a decrease beyond age 44.
- Females had a higher self-inflicted injury emergency visit rate than males for ages 10 to 54 with a peak of 271.5 per 100,000 for females aged 15 to 19 and a decline with older age.

Figure 3: Male Rate of Suicides (2004-2008), Self-Inflicted Injury Hospitalizations (2004-2008) and Self-Inflicted Injury Emergency Visits (2006-2008) for Ages 10 or Older in North Carolina by Age

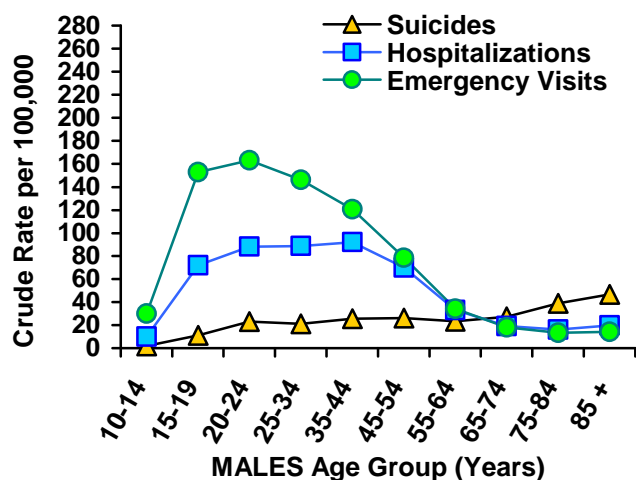
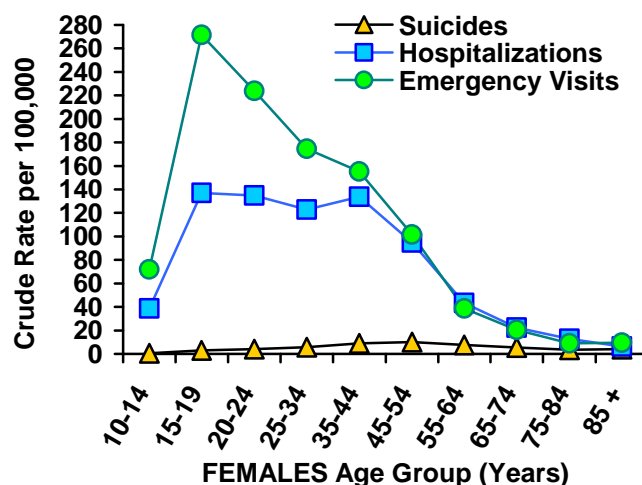


Figure 4: Female Rate of Suicides (2004-2008), Self-Inflicted Injury Hospitalizations (2004-2008) and Self-Inflicted Injury Emergency Visits (2006-2008) for Ages 10 or Older in North Carolina by Age



Characteristics of suicide victims in North Carolina during 2004 to 2008 included:

- Most suicide victims were male (76.8%), white (89.0%), non-Hispanic (97.6%), between 25 and 64 years of age (71.0%), married (44.8%), and educated for 12 or more years (75.8%).
- The suicide rate per 100,000 by race from highest to lowest was for whites (16.6), American Indians (10.3), Asians and Pacific Islanders (6.5) and blacks (5.9). The highest suicide rate by race and gender was for white men (25.8 per 100,000) and white women (7.7 per 100,000). Non-Hispanics were 2.5 times more likely to die from suicide than Hispanics (14.5 vs. 5.9 per 100,000, respectively).
- The most common circumstances surrounding suicide were having a current mental health problem (47.5%), a history of treatment for mental illness (46.7%) or currently receiving treatment (42.9%), a depressed mood (46.3%), and a crisis within two weeks (35.9%). At the time of suicide, 81.6 percent of victims with a mental health problem had depression.
- Of the 83.5 percent of suicide victims tested for alcohol, the presence of alcohol was found in 28.9 percent of victims and was most frequent in males, ages 20 to 54 years, and American Indians and whites.
- The majority of injuries resulting in suicides (82.0%) occurred in a house or apartment.

Suicide methods and self-inflicted injury types for North Carolinians included:

- The most common suicide methods were firearm (59.0%), poisoning (19.4%), and hanging, strangulation or suffocation (16.8%). A handgun was the most common firearm used by 67.7 percent of firearm suicide victims. Prescription pharmaceuticals were the leading type of poison in 70.3 percent of suicide poisonings.
- The gender difference in suicide rates was related to suicide method. Males more often used highly lethal means, such as firearms (65.1%); whereas, females more commonly used poisoning (41.1%) over a firearm (38.9%), leading to a higher percentage of non-fatal self-inflicted injuries in females.
- The most common self-inflicted injury hospitalizations were for poisoning (82.7%) and cut or pierce injuries (11.9%). Poisoning (70.8%) and cut or pierce injuries (21.8%) were also the leading self-inflicted injuries treated in emergency departments.

The following trends were noted for youth/young adults, older adults and veterans in North Carolina:

- Among youth and young adults aged 10 to 24, there were 679 suicides (7.5 per 100,000) and 7,167 self-inflicted injury hospitalizations (79.7 per 100,000) in 2004 to 2008, and 8,336 emergency visits (152.3 per 100,000) for self-inflicted injury from 2006 to 2008.
- In the YRBS survey of North Carolina high school students, the percentage of students who reported the following outcomes during the past 12 months varied slightly by survey year in 2005, 2007 and 2009 as follows: 26.5 to 27.4 percent felt so sad or hopeless almost every day for two weeks that they stopped doing some usual activities; 12.5 to 15.6 percent seriously considered attempting suicide; 9.5 to 13.1 percent made a plan about how they would attempt suicide; and 9.9 to 13.3 percent actually attempted suicide one or more times.
- For older adults aged 65 or older, there were 875 suicides (16.2 per 100,000) and 932 self-inflicted injury hospitalizations (17.2 per 100,000) from 2004 to 2008, and 508 emergency visits (15.3 per 100,000) for self-inflicted injuries between 2006 and 2008.
- During 2004 to 2008, a total of 1,148 North Carolina veterans died from suicide with a suicide rate (29.6 per 100,000) twice the overall suicide rate (14.0 per 100,000).
- Other common circumstances for suicide victims ages 10 to 24 were an intimate partner problem (31.9%), other relationship problem (17.1%), substance abuse problem excluding alcohol (15.7%) and recent criminal-related legal problem (13.7%). The most common circumstance for older adult suicide victims was a physical health problem (57.0%). Common circumstances for veteran suicide victims were problems with physical health (34.6%), intimate partner (22.0%) and alcohol (12.1%).

Based on these key findings, the authors of this report make the following recommendations for suicide prevention in North Carolina:

- Promote awareness that suicide is a public health problem that is preventable.
- Develop and implement community-based suicide prevention programs.
- Promote efforts to reduce access to lethal means and methods of self-harm.
- Implement training for recognition of at-risk behavior and delivery of effective treatment.
- Improve and expand surveillance systems.

OVERALL BURDEN OF SUICIDE AND SELF-INFLICTED INJURIES

Evaluating trends and identifying risk factors for suicide and self-inflicted injuries are essential first steps to reducing the burden on victims, families and communities in North Carolina. This section provides statistics on the overall burden of completed suicides and suicide attempts based on hospitalizations and emergency department visits for self-inflicted injuries in North Carolina residents aged 10 years or older, unless otherwise specified.

KEY FINDINGS:

Suicide and Self-Inflicted Injuries over Time and Compared to the U.S.

The sustained suicide rate over time from 1999 to 2007 (Figure 5) demonstrated the persistent nature of this public health problem in North Carolina and in the U.S. During this time, the North Carolina age-adjusted suicide rate per 100,000 persons remained relatively unchanged from a low of 12.8 in 1999 to a high of 14.3 in 2006 and exceeded the national rate each year. In comparison, the age-adjusted suicide rate per 100,000 in the U.S. increased slightly from a low of 12.2 in 1999 to a high of 13.1 in 2007.

In North Carolina, a total of 5,366 suicides (14.0 per 100,000) and 29,091 self-inflicted injury hospitalizations (76.0 per 100,000) occurred from 2004 to 2008, and 24,867 self-inflicted injury emergency visits (106.3 per 100,000) were reported from 2006 to 2008 (Table 1). Note that only 79 percent of emergency departments were reporting in 2006. Overall, age-adjusted rates were similar to crude rates (Figure 6).

Years of Potential Life Lost from Suicide

Years of potential life lost before age 65 was estimated as a result of premature death from suicide. Between 2004 and 2007, the aggregate age-adjusted rate of years of potential life lost from suicide per 100,000 persons in North Carolina was 284 years, slightly higher than the aggregate national rate of 267 years (Figure 7). Over this 4-year period, a total of 86,690 years of potential life were lost from suicide in North Carolina (Table 2). Suicide resulted in more years of potential life lost as compared to other common causes of early death in North Carolina, including homicide, congenital abnormalities, cerebrovascular disease, human immunodeficiency virus and diabetes mellitus (Table 2 and Figure 8).

Hospitalization Charges for Self-Inflicted Injuries

Hospitalization charges for self-inflicted injuries provide an estimate of the economic burden of suicidal behavior resulting in hospitalization. However, this estimate does not account for the indirect costs of loss in productivity and quality of life from self-inflicted injuries that contribute to an even greater burden on victims and families. Self-inflicted injury hospitalization charges in North Carolina from 2004 to 2008 totaled \$315 million with average charges of \$10,841 and median charges of \$6,533 per hospitalization (Table 3).

Demographics of Suicide and Self-Inflicted Injury Victims

Demographic characteristics for suicide victims in North Carolina during 2004 to 2008 are shown by year in Table 4 and for the aggregate 5-year period in Table 5. Most suicide victims in North Carolina from 2004 to 2008 were male (76.8%), white (89.0%), non-Hispanic (97.6%) and between the ages of 25 and 64 years (71.0%).

Men were 3.5 times more likely to die from suicide than women (22.2 vs. 6.3 per 100,000, respectively). By race, the suicide rate per 100,000 from highest to lowest was for whites (16.6), American Indians (10.3), Asians and Pacific Islanders (6.5) and blacks (5.9). Non-Hispanics were 2.5 times more likely to die from suicide than Hispanics (14.5 vs. 5.9 per 100,000, respectively). By age, adolescents had the lowest suicide rates of 1.2 per 100,000 for ages 10 to 14 and 7.2 for ages 15 to 19. Adults had similar suicide rates across age groups with the highest rate by age in the 45 to 54 age group (17.9 per 100,000). Although adults ages 65 or older represented only 16.3 percent of the total suicides from 2004 to 2008, the older adult suicide rate during this time ranged from 15.3 per 100,000 for ages 65 to 74 to 17.4 per 100,000 for ages 75 to 84.

In contrast to suicides, different gender and age trends were observed for self-inflicted injury hospitalizations from 2004 to 2008 (Table 6 and Table 7) and emergency visits during 2006 to 2008 (Table 8 and Table 9) in North Carolina. Females as compared to males were 1.4 times more likely to be hospitalized (88.3 vs. 63.0 per 100,000, respectively) and 1.3 times more likely to visit an emergency department (118.7 vs. 93.2 per 100,000, respectively) for self-inflicted injury. The self-inflicted injury hospitalization rate was highest between ages 15 and 44, while the self-inflicted injury emergency visit rate peaked for ages 15 to 24 and declined with older age. Adolescents and young adults had considerably higher rates of suicidal behavior resulting in non-fatal injury than in death; conversely, older adults had similar fatal and non-fatal self-inflicted injury rates. For example, adolescents ages 15 to 19 as compared to adults ages 85 or older were 2.3 times less likely to die from suicide (7.2 vs. 16.7 per 100,000, respectively) but 10 times more likely to be hospitalized (103.6 vs. 10.2 per 100,000, correspondingly) and 20 times more likely to visit an emergency department (210.6 vs. 10.8 per 100,000, respectively) for self-inflicted injury.

Stratification by both gender and age yielded a greater understanding of the differences between men and women in suicides (Table 10 and Figure 9), self-inflicted injury hospitalizations (Table 11 and Figure 10) and self-inflicted injury emergency visits (Table 12 and Figure 11) in North Carolina from 2004 to 2008. Males had a higher suicide rate than females across all age groups. For males, the trend in the suicide rate increased from ages 10 to 20 years, remained relatively stable from ages 20 to 64 years, and peaked at 46.7 per 100,000 in ages 85 or older. Among women, the trend in the suicide rate increased from ages 10 to 44 years, peaked at 10.1 per 100,000 in ages 45 to 54 years, and gradually declined in ages 55 or older.

Females had a higher self-inflicted injury hospitalization rate than males for all age groups except ages 75 or older. Both genders showed a sharp increase in the self-inflicted injury hospitalization rate from ages 10 to 15 years with a peak between ages 15 and 44 years, followed by a steady decrease in ages 45 or older. The highest self-inflicted injury hospitalization rates by gender were observed in males aged 35 to 44 years (92.2 per 100,000) and females aged 15 to 19 years (136.9 per 100,000). Females had a higher self-inflicted injury emergency department visit rate than males for ages 10 to 54 years and a similar rate to males for ages 55 years or older. The emergency department visit rate peaked at 163.1 per 100,000 for males aged 20 to 24 years and at 271.5 per 100,000 for females aged 15 to 19 years, followed by a decline in older age groups for both males and females.

For suicide victims stratified by race and gender in North Carolina over 2004 to 2008, whites accounted for 88.5 percent of male and 90.6 percent of female victims, while blacks comprised 9.7 percent of male and 7.1 percent of female victims (Table 13). American Indian, Asian and Pacific Islander, and other and unspecified race combined represented less than three percent of suicide victims for both males and females. By race and gender, the highest suicide rate was observed in white men (25.8 per 100,000) and white women (7.7 per 100,000).

In North Carolina in 2004 to 2008, adult suicide victims (ages 18 and older) were most commonly married (44.8%) as compared to never married (25.7%), divorced (21.9%) or widowed (7.4%) (Figure 12). Most adult suicide victims completed high school with 75.8 percent having 12 or more years of education (Figure 13).

Suicide and Self-Inflicted Injuries by North Carolina County of Residence

The number and crude rate of suicides (Figure 14 and Table 14) and self-inflicted injury hospitalizations (**Error! Reference source not found.** and Table 15) in 2004 to 2008 and self-inflicted injury emergency department visits (**Error! Reference source not found.** and Table 16) in 2006 to 2008 are displayed stratified by North Carolina county of residence. The top 20 counties with the highest rates are shown bolded in the tables.

Suicide Method

The leading methods of suicide in North Carolina during 2004 to 2008 were firearm (59.0%), poisoning (19.4%), and hanging, strangulation or suffocation (16.8%) (Table 17). The gender difference in suicide rates was related to the suicide method. Males more often used highly lethal means, such as firearms (65.1%); whereas, females more commonly used poisoning (41.1%) over a firearm (38.9%), leading to a higher percentage of non-fatal self-inflicted injuries in females. A handgun was the most common firearm used by 67.7 percent of firearm suicide victims, including by 64.8 percent of males and 83.7 percent of females (Table 18). A shotgun was used by 19.4 percent and a rifle was used by 11.7 percent of firearm suicide victims. Prescription pharmaceuticals were the leading type of poison in 70.3 percent of suicide poisonings, including by 58.7 percent of male victims and 82.2 percent of female victims (Table 19). Other common poisons found in suicide poisonings were carbon monoxide or other gas (18.7%) and over-the-counter pharmaceuticals (6.0%).

Self-Inflicted Injury Type

Poisoning injuries (82.7%) and cut or pierce injuries (11.9%) represented the majority of self-inflicted injury hospitalizations in North Carolina from 2004 to 2008 with analogous trends by gender (Table 20). Furthermore, poisoning injuries (70.8%) and cut or pierce injuries (21.8%) were the leading types of self-inflicted injuries treated in emergency departments with similar trends by gender (Table 21).

Suicide Circumstances

Circumstances surrounding suicides in North Carolina in 2004 to 2008 were available in NC-VDRS for 92.5 percent of suicide victims (Table 22). A wide range of circumstances lead to suicide, and each victim may have more than one circumstance. The most common circumstances were related to mental health, such as: having a current mental health problem (47.5%); having ever been treated for mental illness (46.7%); and having a depressed mood (46.3%). At the time of suicide, 42.9 percent of victims were currently being treated for mental illness. The most common current mental health problems were depression or dysthymia (81.6%) and bipolar disorder (9.8%) (Table 23).

A crisis within two weeks was reported for 35.9 percent of victims (Table 22). Other common circumstances of suicide were problems with an intimate partner (26.8%), physical health (20.0%), alcohol (14.1%), and substance abuse excluding alcohol (12.8%). A suicide note was left by 28.3 percent of victims, and intent to complete suicide was disclosed by 24.0 percent. A history of suicide attempts was reported for 16.3 percent of victims who died by suicide.

Toxicology Testing

Toxicology testing was performed on suicide victims at the medical examiner's direction to identify substances believed to have contributed to the death or circumstances surrounding the death. A positive test for a substance does not necessarily indicate that substance was present at a lethal level. Alcohol was tested in 83.5 percent of all suicides in North Carolina from 2004 to 2008; whereas, testing was relatively infrequent for other substances, including opiates (13.1%), cocaine (10.5%), antidepressants (9.7%), amphetamines (1.3%), marijuana (0.8%), and other drugs (16.9%) (Table 24). Of those victims tested, the results were positive for the presence of alcohol in 28.9 percent, opiates in 67.5 percent, cocaine in 18.4 percent, antidepressants in 94.4 percent, amphetamines in 35.2 percent, marijuana in 16.3 percent and other drugs in 94.6 percent.

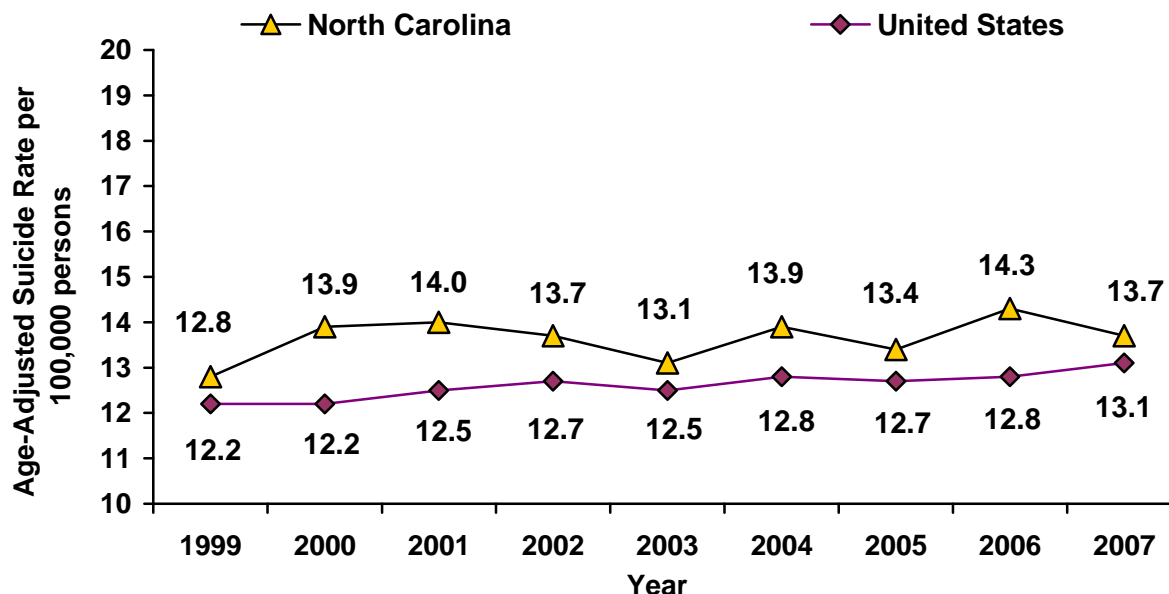
Considering only the 83.5 percent of suicide victims tested for alcohol, the presence of alcohol was found in 30.9 percent of male victims and 22.5 percent of female victims. Ages 20 to 54 had the highest percentage of suicide victims with alcohol present, ranging from 28.2 to 32.2 percent in this age group (Table 25). By race, alcohol was present in 32.0 percent of American Indians, 24.6 percent of whites, 19.3 percent of blacks, and 16.7 percent of Asians and Pacific Islanders.

Suicidal Injury Location

The majority of injuries resulting in suicides (82.0%) in North Carolina between 2004 and 2008 occurred in a house or apartment (Table 26). Other locations where more than one percent of injuries resulting in suicides were reported included: a natural area (3.8%); motor vehicle (3.1%); street, road, sidewalk or alley (1.9%); and hotel or motel (1.7%).

Suicide and Self-Inflicted Injuries Over Time and Compared to the U.S.

Figure 5: Age-Adjusted Suicide Rate for Ages 10 or Older in North Carolina and the United States Over Time*



* Data Source: CDC WISQARS

Table 1: Suicides, Self-Inflicted Injury Hospitalizations and Self-Inflicted Injury Emergency Department Visits for Ages 10 or Older in North Carolina by Year

Year	Suicides			Hospitalizations			Emergency Department Visits		
	Number	Rate	95% CI	Number	Rate	95% CI	Number	Rate	95% CI
2004	1,017	13.8	12.9 - 14.6	5,312	72.0	70.1 - 73.9	NA*	NA*	NA*
2005	1,009	13.5	12.6 - 14.3	5,299	70.7	68.8 - 72.6	NA*	NA*	NA*
2006	1,107	14.5	13.6 - 15.3	5,784	75.6	73.7 - 77.6	7,138 ‡	93.4 ‡	91.2 - 95.5 ‡
2007	1,085	13.9	13.1 - 14.7	6,236	80.0	78.0 - 81.9	9,436	121.0	118.6 - 123.4
2008	1,148	14.4	13.6 - 15.3	6,460	81.3	79.3 - 83.3	8,293	104.4	102.1 - 106.6
TOTAL	5,366	14.0	13.6 - 14.4	29,091	76.0	75.2 - 76.9	24,867	106.3	105.0 - 107.6

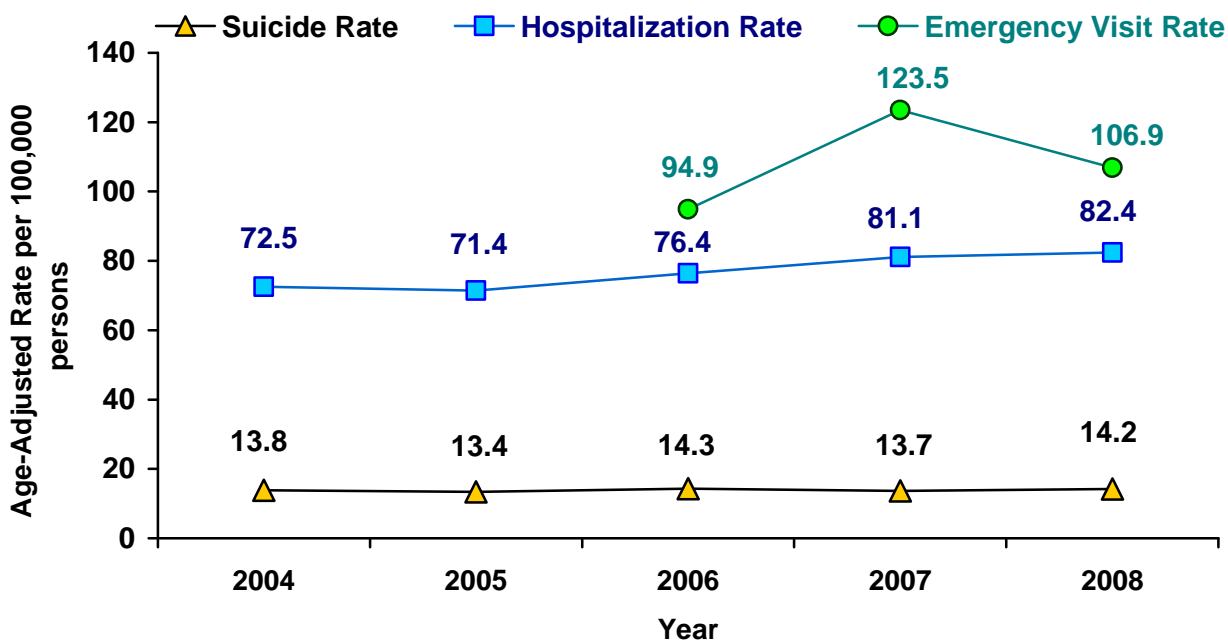
Crude rate per 100,000 N.C. population

95% CI = 95 Percent Confidence Interval for Rate

* Emergency department visit data are not available for 2004-2005

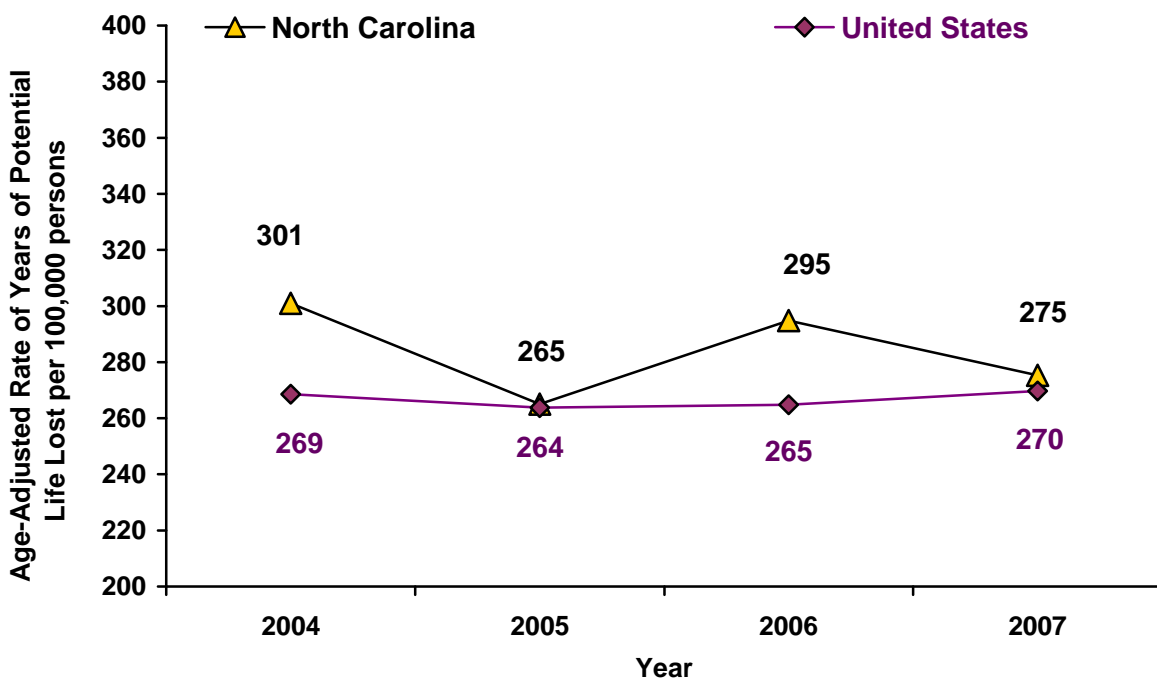
‡ Only 79 percent of emergency departments reporting in 2006

Figure 6: Age-Adjusted Rate of Suicides, Self-Inflicted Injury Hospitalizations and Self-Inflicted Injury Emergency Visits for Ages 10 or Older in North Carolina by Year



Years of Potential Life Lost from Suicide

Figure 7: Age-Adjusted Rate of Number of Years of Potential Life Lost Before Age 65 from Suicides in North Carolina and the United States Over Time*



* Data Source: CDC WISQARS

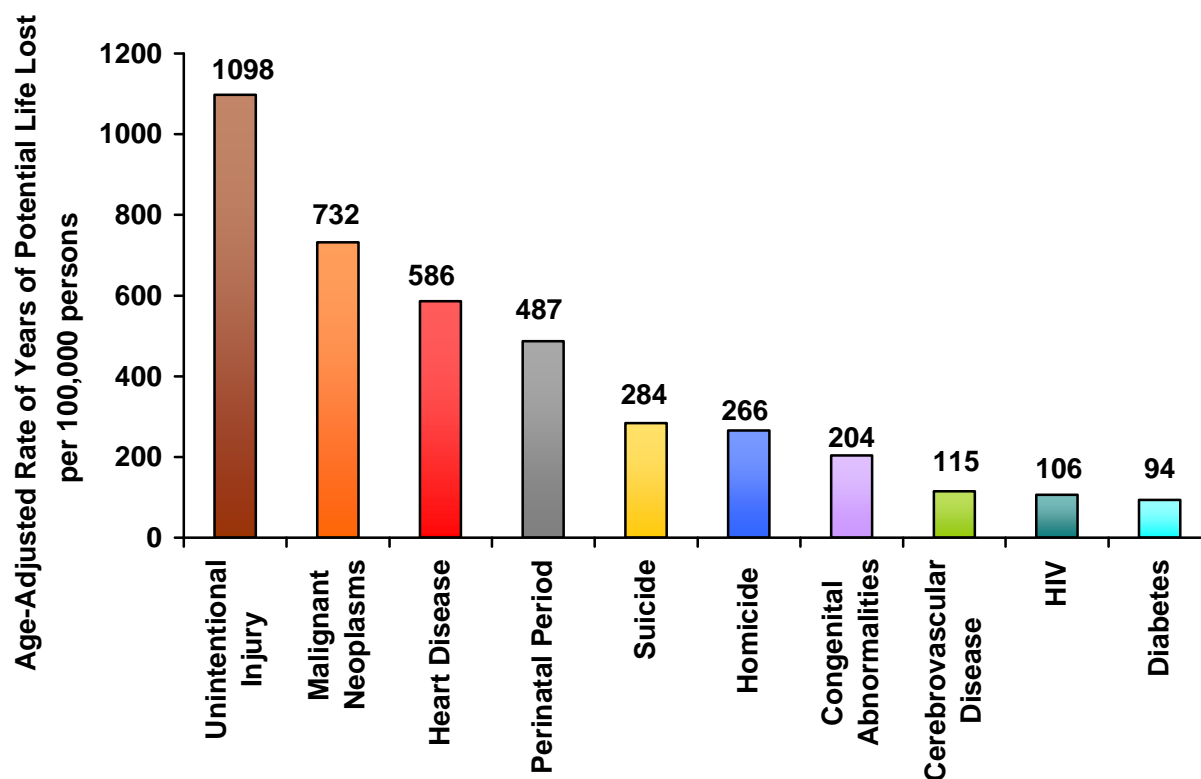
Table 2: Number of Years of Potential Life Lost Before Age 65 from Suicides Compared to Other Causes of Death in North Carolina by Year*

Cause of Death	Number of Years of Potential Life Lost				
Year	2004	2005	2006	2007	TOTAL
Unintentional Injury	81,980	81,474	82,813	87,341	333,608
Malignant Neoplasms	58,702	58,580	60,697	61,073	239,052
Heart Disease	46,273	46,727	47,855	48,011	188,866
Perinatal Period	37,462	38,176	36,524	37,757	149,919
Suicide	22,456	20,024	22,758	21,452	86,690
Homicide	18,917	20,960	20,154	20,908	80,939
Congenital Abnormalities	15,769	15,609	14,622	16,569	62,569
Cerebrovascular Disease	9,400	9,946	9,445	8,024	36,815
HIV	8,223	8,388	8,519	7,079	32,209
Diabetes Mellitus	7,356	7,156	8,078	7,791	30,381

HIV = Human Immunodeficiency Virus

* Data Source: CDC WISQARS

Figure 8: Age-Adjusted Rate of Years of Potential Life Lost Before Age 65 from Suicides Compared to Other Causes of Death in North Carolina* (2004-2007)



HIV = Human Immunodeficiency Virus

* Data Source: CDC WISQARS

Hospitalization Charges for Self-Inflicted Injuries

Table 3: Estimated Hospitalization Charges for Self-Inflicted Injuries for Ages 10 or Older in North Carolina by Year

Year	Number of Hospitalizations with Charge Data	Average Charges	Median Charges	Total Charges
2004	5,309	\$8,929	\$5,281	\$47,404,692
2005	5,297	\$10,259	\$5,989	\$54,342,364
2006	5,781	\$10,928	\$6,480	\$63,173,020
2007	6,234	\$11,733	\$7,041	\$73,145,238
2008	6,457	\$11,950	\$7,506	\$77,161,272
TOTAL	29,078	\$10,841	\$6,533	\$315,226,586

Demographics of Suicide and Self-Inflicted Injury Victims

Table 4: Demographics of Suicide Victims Ages 10 or Older in North Carolina by Year

	2004		2005		2006		2007		2008	
Gender	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Male	784	21.9	771	21.6	857	23.1	830	21.9	878	22.7
Female	233	6.1	238	6.0	250	6.4	255	6.4	270	6.6
Race										
American Indian	7	7.5	7	7.3	10	10.3	15	15.2	11	11.0
Asian/Pacific Islander	9	6.8	8	5.8	8	5.5	5	3.2	18	11.1
Black	99	6.2	100	6.2	93	5.6	85	5.0	109	6.3
Other / Unspecified	2	*	0	*	1	*	0	*	2	*
White	900	16.2	894	15.9	995	17.3	980	16.7	1,008	16.9
Hispanic Ethnicity										
Hispanic	23	6.0	17	4.2	26	6.0	31	6.7	32	6.5
Non-Hispanic	994	14.2	992	14.0	1,081	15.0	1,054	14.4	1,116	15.0
Age Group (Years)										
10-14	9	1.5	7	1.2	7	1.2	7	1.2	5	0.8
15-19	46	8.1	38	6.5	47	7.8	43	6.9	44	7.0
20-24	82	13.8	76	12.8	101	16.7	81	13.3	86	13.7
25-34	179	14.8	143	11.9	156	12.9	155	12.7	179	14.5
35-44	243	18.8	210	16.1	215	16.3	234	17.5	231	17.2
45-54	175	14.6	228	18.5	265	21.0	214	16.5	252	19.0
55-64	120	13.5	126	13.5	143	14.7	171	16.7	173	16.4
65-74	79	14.3	94	16.8	91	15.8	97	16.4	82	13.3
75-84	62	17.3	65	17.9	57	15.5	64	17.3	71	19.0
85 +	22	17.9	22	17.1	25	18.5	19	13.4	25	16.9
TOTAL	1,017	13.8	1,009	13.5	1,107	14.5	1,085	13.9	1,148	14.4

Gender, race, Hispanic ethnicity or age-specific crude rate per 100,000 N.C. population

* The number of deaths was zero or too small to support calculation of a rate.

Table 5: Demographics of Suicide Victims Ages 10 or Older in North Carolina (2004-2008)

Gender	Number	Percent	Rate	95% CI
Male	4,120	76.8	22.2	21.5 - 22.8
Female	1,246	23.2	6.3	6.0 - 6.7
Race				
American Indian	50	0.9	10.3	7.4 - 13.2
Asian / Pacific Islander	48	0.9	6.5	4.7 - 8.4
Black	486	9.1	5.9	5.4 - 6.4
Other / Unspecified	5	0.1	*	*
White	4,777	89.0	16.6	16.2 - 17.0
Hispanic Ethnicity				
Hispanic	129	2.4	5.9	4.9 - 6.9
Non-Hispanic	5,237	97.6	14.5	14.1 - 14.9
Age Group (Years)				
10-14	35	0.7	1.2	0.8 - 1.6
15-19	218	4.1	7.2	6.3 - 8.2
20-24	426	7.9	14.1	12.7 - 15.4
25-34	812	15.1	13.4	12.4 - 14.3
35-44	1,133	21.1	17.2	16.2 - 18.2
45-54	1,134	21.1	17.9	16.9 - 19.0
55-64	733	13.7	15.1	14.0 - 16.1
65-74	443	8.3	15.3	13.9 - 16.7
75-84	319	5.9	17.4	15.5 - 19.3
85 +	113	2.1	16.7	13.6 - 19.8
TOTAL	5,366	100	14.0	13.6 - 14.4

Gender, race, Hispanic ethnicity or age-specific crude rate per 100,000 N.C. population

95% CI = 95 Percent Confidence Interval for Rate * The number of deaths was too small to support calculation of a rate.

Table 6: Demographics of Self-Inflicted Injury Hospitalizations for Ages 10 or Older in North Carolina by Year

	2004		2005		2006		2007		2008	
Gender	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Male	2,040	56.9	2,129	58.5	2,323	62.5	2,536	67.0	2,682	69.4
Female	3,272	86.3	3,169	82.2	3,461	88.1	3,700	92.2	3,778	92.6
Unknown	0	*	1	*	0	*	0	*	0	*
Age Group (Years)										
10-14	160	27.1	130	22.1	131	22.3	148	25.0	139	23.4
15-19	593	103.8	587	99.8	620	102.6	670	107.9	652	103.7
20-24	634	106.9	607	102.5	617	101.8	714	116.9	765	122.0
25-34	1,195	98.8	1,170	97.1	1,323	109.1	1,328	109.2	1,422	115.2
35-44	1,431	110.6	1,357	104.1	1,473	111.6	1,616	120.9	1,584	118.1
45-54	846	70.5	955	77.6	1,044	82.6	1,161	89.4	1,219	92.0
55-64	310	35.0	311	33.4	369	37.9	400	39.2	478	45.3
65-74	95	17.2	103	18.4	132	23.0	142	24.0	133	21.5
75-84	41	11.4	58	15.9	59	16.1	47	12.7	53	14.2
85 +	7	5.7	21	16.3	16	11.8	10	7.0	15	10.1
TOTAL	5,312	72.0	5,299	70.7	5,784	75.6	6,236	80.0	6,460	81.3

Gender or age-specific crude rate per 100,000 N.C. population

95% CI = 95 Percent Confidence Interval for Rate * The number of deaths was too small to support calculation of a rate.

Table 7: Demographics of Self-Inflicted Injury Hospitalizations for Ages 10 or Older in North Carolina (2004-2008)

Gender	Number	Percent	Rate	95% CI
Male	11,710	40.3	63.0	61.9 - 64.1
Female	17,380	59.7	88.3	87.0 - 89.7
Unknown	1	0.003	*	*
Age Group (Years)				
10-14	708	2.4	24.0	22.2 - 25.7
15-19	3,122	10.7	103.6	100.0 - 107.2
20-24	3,337	11.5	110.2	106.4 - 113.9
25-34	6,438	22.1	105.9	103.3 - 108.5
35-44	7,461	25.7	113.1	110.6 - 115.7
45-54	5,225	18.0	82.7	80.5 - 84.9
55-64	1,868	6.4	38.4	36.6 - 40.1
65-74	605	2.1	20.9	19.2 - 22.6
75-84	258	0.9	14.1	12.4 - 15.8
85 +	69	0.2	10.2	7.8 - 12.6
TOTAL	29,091	100	76.0	75.2 - 76.9

Gender or age-specific crude rate per 100,000 N.C. population

95% CI = 95 Percent Confidence Interval for Rate * The number of deaths was too small to support calculation of a rate.

Table 8: Demographics of Self-Inflicted Injury Emergency Department Visits for Ages 10 or Older in North Carolina by Year

	2006 ‡		2007		2008	
Gender	Number	Rate	Number	Rate	Number	Rate
Male	3,069	82.5	3,985	105.3	3,534	91.5
Female	4,069	103.6	5,451	135.8	4,758	116.6
Unknown	0	*	0	*	1	*
Age Group (Years)						
10-14	270	45.9	318	53.7	307	51.6
15-19	1,174	194.2	1,454	234.3	1,277	203.0
20-24	1,000	165.0	1,385	226.8	1,151	183.6
25-34	1,701	140.2	2,247	184.8	1,930	156.3
35-44	1,559	118.1	2,097	156.9	1,867	139.2
45-54	979	77.5	1,328	102.3	1,204	90.8
55-64	305	31.3	412	40.3	394	37.3
65-74	99	17.2	138	23.3	107	17.3
75-84	39	10.6	38	10.3	41	11.0
85 +	12	8.9	19	13.4	15	10.1
TOTAL	7,138	93.4	9,436	121.0	8,293	104.4

Gender or age-specific crude rate per 100,000 N.C. population

95% CI = 95 Percent Confidence Interval for Rate ‡ Only 79 percent of emergency departments reporting in 2006

* The number of deaths was zero or too small to support calculation of a rate.

Table 9: Demographics of Self-Inflicted Injury Emergency Department Visits for Ages 10 or Older in North Carolina (2006-2008)

Gender	Number	Percent	Rate	95% CI
Male	10,588	42.6	93.2	91.4 - 94.9
Female	14,278	57.4	118.7	116.8 - 120.7
Unknown	1	0.004	*	*
Age Group (Years)				
10-14	895	3.6	50.4	47.1 - 53.7
15-19	3,905	15.7	210.6	204.0 - 217.2
20-24	3,536	14.2	191.8	185.5 - 198.1
25-34	5,878	23.6	160.4	156.4 - 164.5
35-44	5,523	22.2	138.1	134.5 - 141.8
45-54	3,511	14.1	90.3	87.3 - 93.3
55-64	1,111	4.5	36.4	34.3 - 38.6
65-74	344	1.4	19.3	17.2 - 21.3
75-84	118	0.5	10.6	8.7 - 12.6
85 +	46	0.2	10.8	7.7 - 13.9
TOTAL	24,867	100	106.3	105.0 - 107.6

Gender, race, Hispanic ethnicity and age-specific crude rate per 100,000 N.C. population

95% CI = 95 Percent Confidence Interval for Rate * The number of deaths was too small to support calculation of a rate.

Age and Gender

Table 10: Suicides for Ages 10 or Older in North Carolina by Age and Gender (2004-2008)

Age (Years)	Male			Female		
	Number	Percent	Rate	Number	Percent	Rate
10-14	28	0.7	1.9	7	0.6	0.5
15-19	173	4.2	11.2	45	3.6	3.1
20-24	368	8.9	23.1	58	4.7	4.0
25-34	642	15.6	21.1	170	13.6	5.6
35-44	832	20.2	25.4	301	24.2	9.1
45-54	806	19.6	26.2	328	26.3	10.1
55-64	542	13.2	23.4	191	15.3	7.5
65-74	356	8.6	27.2	87	7.0	5.5
75-84	280	6.8	38.9	39	3.1	3.5
85 +	93	2.3	46.7	20	1.6	4.2
TOTAL	4,120	100	22.2	1,246	100	6.3

Gender and age-specific crude rate per 100,000 N.C. population

Figure 9: Age-Specific Crude Rate of Suicides for Ages 10 or Older in North Carolina by Age and Gender (2004-2008)

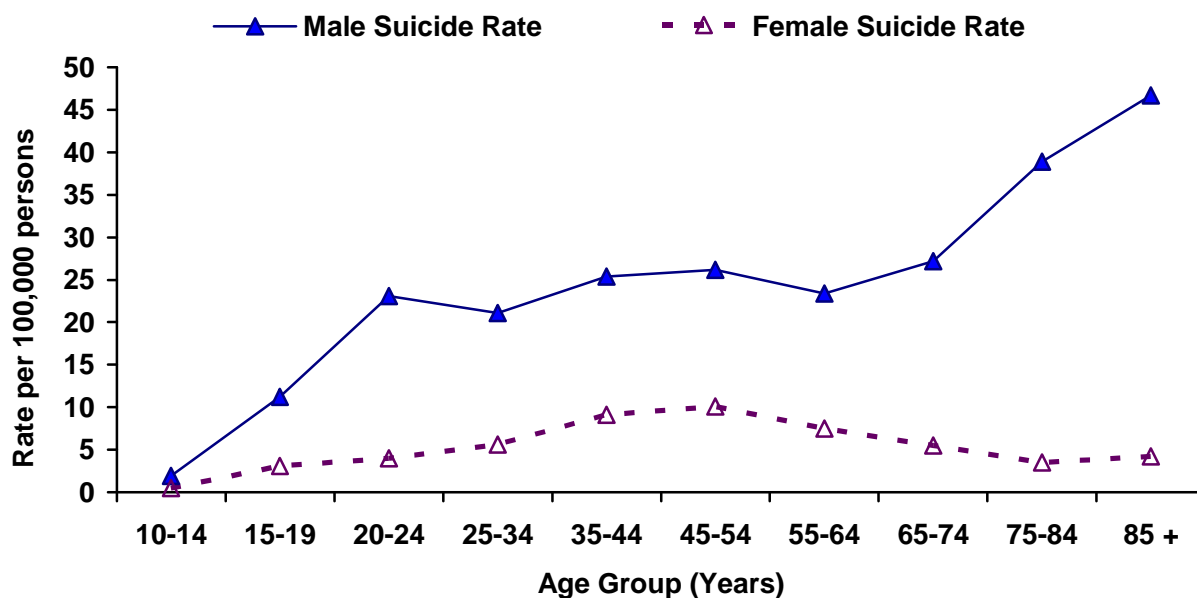


Table 11: Self-Inflicted Injury Hospitalizations for Ages 10 or Older in North Carolina by Age and Gender (2004-2008)

Age (Years)	Male			Female		
	Number	Percent	Rate	Number	Percent	Rate
10-14	150	1.3	9.9	558	3.2	38.7
15-19	1,114	9.5	72.0	2,008	11.6	136.9
20-24	1,407	12.0	88.2	1,930	11.1	134.6
25-34	2,704	23.1	88.9	3,733	21.5	122.9
35-44	3,020	25.8	92.2	4,441	25.6	133.8
45-54	2,147	18.3	69.9	3,078	17.7	94.8
55-64	764	6.5	32.9	1,104	6.4	43.3
65-74	250	2.1	19.1	355	2.0	22.4
75-84	115	1.0	16.0	143	0.8	12.9
85 +	39	0.3	19.6	30	0.2	6.3
TOTAL	11,710	100	63.0	17,380	100	88.3

Gender and age-specific crude rate per 100,000 N.C. population

Figure 10: Age-Specific Crude Rate of Self-Inflicted Injury Hospitalizations for Ages 10 or Older in North Carolina by Age and Gender (2004-2008)

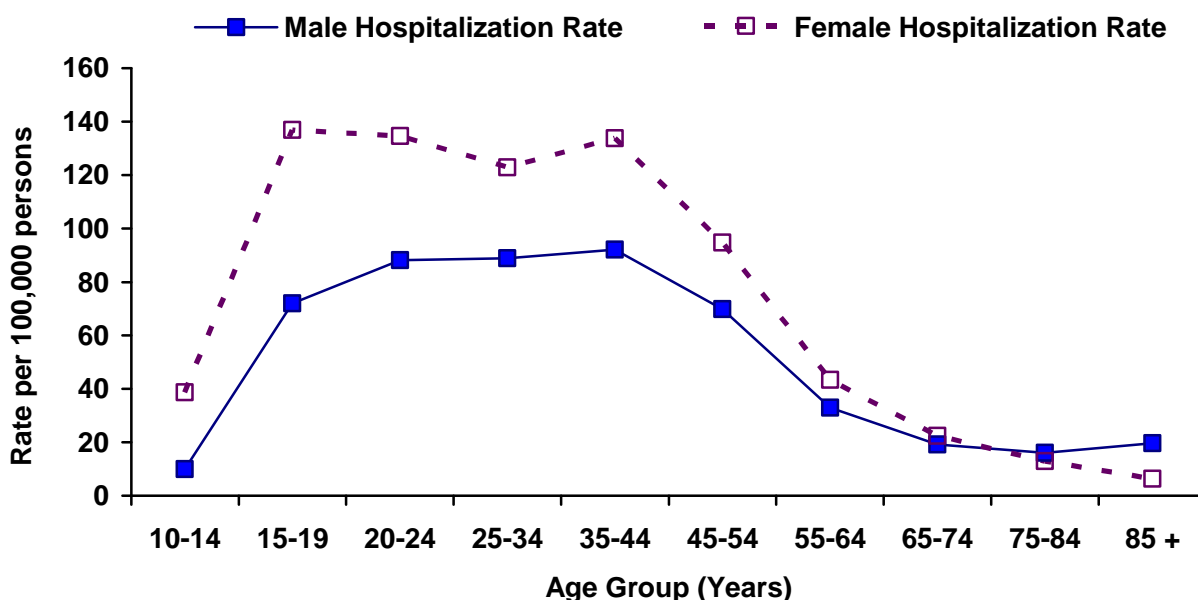
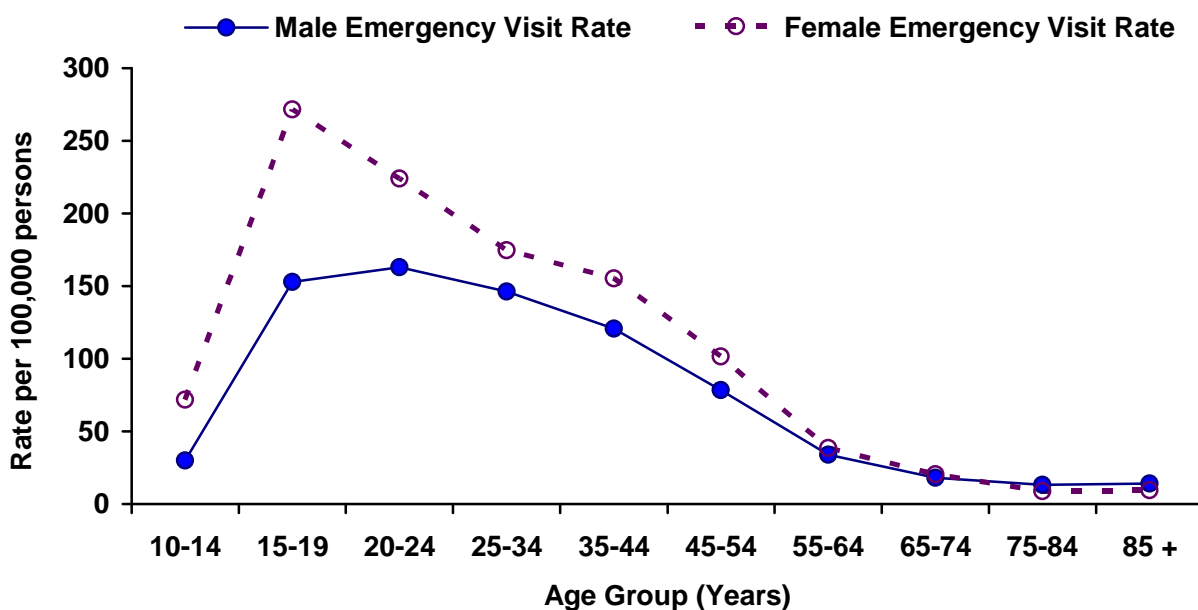


Table 12: Self-Inflicted Injury Emergency Department Visits for Ages 10 or Older in North Carolina by Age and Gender (2006-2008)

Age (Years)	Male			Female		
	Number	Percent	Rate	Number	Percent	Rate
10-14	273	2.6	30.0	622	4.4	71.9
15-19	1,455	13.7	152.9	2,450	17.2	271.5
20-24	1,591	15.0	163.1	1,945	13.6	224.0
25-34	2,673	25.3	146.2	3,205	22.5	174.6
35-44	2,398	22.7	120.7	3,124	21.9	155.3
45-54	1,483	14.0	78.5	2,028	14.2	101.6
55-64	494	4.7	34.0	617	4.3	38.6
65-74	145	1.4	18.0	199	1.4	20.4
75-84	58	0.6	13.2	60	0.4	8.9
85 +	18	0.2	14.1	28	0.2	9.4
TOTAL	10,588	100	93.2	14,278	100	118.7

Gender and age-specific crude rate per 100,000 N.C. population

Figure 11: Age-Specific Crude Rate of Self-Inflicted Injury Emergency Department Visits for Ages 10 or Older in North Carolina by Age and Gender (2006-2008)



Race and Gender

Table 13: Suicides for Ages 10 or Older in North Carolina by Race and Gender (2004-2008)

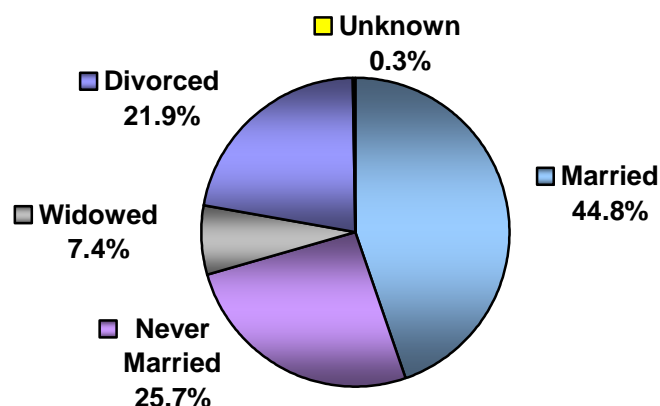
Race	Male			Female		
	Number	Percent	Rate	Number	Percent	Rate
American Indian	42	1.0	17.6	8	0.6	3.2
Asian/Pacific Islander	29	0.7	8.1	19	1.5	5.0
Black	398	9.7	10.4	88	7.1	2.0
Other/Unspecified	3	0.1	*	2	0.2	*
White	3648	88.5	25.8	1129	90.6	7.7
TOTAL	4,120	100	22.2	1246	100	6.3

Gender and race-specific crude rate per 100,000 N.C. population

* The number of deaths was zero or too small to support calculation of a rate.

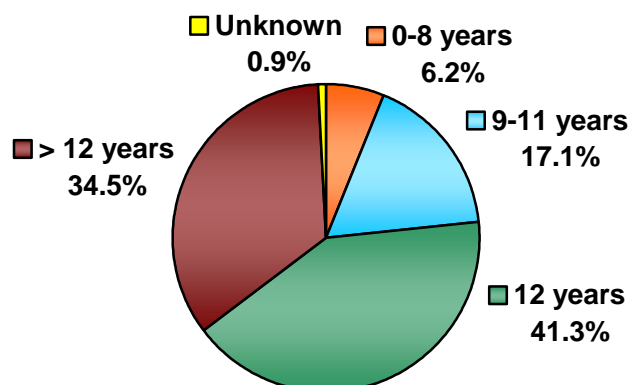
Marital Status

Figure 12: Percentage of Suicides for Adults (Ages 18 or Older) in North Carolina by Marital Status (2004-2008)



Years of Completed Education

Figure 13: Percentage of Suicides for Adults (Ages 18 or Older) in North Carolina by Years of Completed Education (2004-2008)



Legend

Rate per 100,000 Population

- 0.0 - 9.6
- 9.7 - 14.5
- 14.6 - 17.0
- 17.1 - 20.6
- 20.7 - 30.1
- <5 Deaths, Data are Suppressed

Map showing COVID-19 death rates per 100,000 population by county in North Carolina. The map uses a color scale from light blue (lowest rates) to dark blue (highest rates). Some counties are shaded gray, indicating suppressed data. A legend in the bottom left explains the color coding and suppressed data. A north arrow is in the bottom right.

Table 14: Suicides for Ages 10 or Older by North Carolina County of Residence (2004-2008)

County	Number	Rate	County	Number	Rate	County	Number	Rate
Alamance	85	13.8	Franklin	38	15.8	Pamlico	13	22.8
Alexander	36	22.9	Gaston	157	18.2	Pasquotank	21	12.3
Alleghany	11	22.6	Gates	7	13.9	Pender	37	17.6
Anson	14	12.6	Graham	8	23.1	Perquimans	4	*
Ashe	34	30.1	Granville	29	12.1	Person	23	14.2
Avery	16	19.8	Greene	7	7.9	Pitt	54	8.4
Beaufort	33	16.6	Guilford	247	12.5	Polk	22	25.8
Bertie	5	6.0	Halifax	34	14.1	Randolph	122	20.4
Bladen	11	7.9	Harnett	42	9.3	Richmond	33	16.6
Brunswick	67	16.2	Haywood	51	20.3	Robeson	74	13.8
Buncombe	155	15.8	Henderson	83	19.1	Rockingham	63	15.6
Burke	71	18.1	Hertford	13	12.6	Rowan	108	18.2
Cabarrus	82	12.4	Hoke	12	7.2	Rutherford	53	19.2
Caldwell	74	21.3	Hyde	3	*	Sampson	31	11.5
Camden	7	17.6	Iredell	91	14.5	Scotland	20	12.7
Carteret	50	17.8	Jackson	31	19.2	Stanly	60	23.3
Caswell	12	11.5	Johnston	83	13.0	Stokes	36	17.8
Catawba	116	17.5	Jones	3	*	Surry	59	18.7
Chatham	38	14.6	Lee	30	12.4	Swain	9	15.5
Cherokee	27	23.4	Lenoir	29	11.7	Transylvania	27	20.1
Chowan	7	11.0	Lincoln	61	19.8	Tyrrell	1	*
Clay	10	22.3	McDowell	35	18.4	Union	78	10.8
Cleveland	73	17.1	Macon	39	27.2	Vance	23	12.5
Columbus	35	15.0	Madison	21	23.5	Wake	324	9.6
Craven	60	14.8	Martin	15	14.4	Warren	11	12.6
Cumberland	168	12.9	Mecklenburg	331	9.4	Washington	2	*
Currituck	20	19.6	Mitchell	12	17.0	Watauga	29	14.3
Dare	22	14.8	Montgomery	17	14.5	Wayne	69	14.2
Davidson	119	17.6	Moore	65	17.9	Wilkes	60	20.6
Davie	38	22.0	Nash	60	15.1	Wilson	37	11.3
Duplin	41	18.4	New Hanover	132	16.2	Yadkin	32	19.6
Durham	98	9.2	Northampton	13	14.0	Yancey	14	17.2
Edgecombe	29	12.6	Onslow	93	13.9			
Forsyth	198	13.9	Orange	62	11.3			

Crude rate per 100,000 population in the N.C. county Residence county was not available for 1 death (N=5,365).

* Number of deaths was too small to support rate calculation.

Top 20 counties with the highest crude suicide rates are shown in bold.

Figure 15: Map of Self-Inflicted Injury Hospitalization Rates for Ages 10 or Older by North Carolina County of Residence (2004-2008)

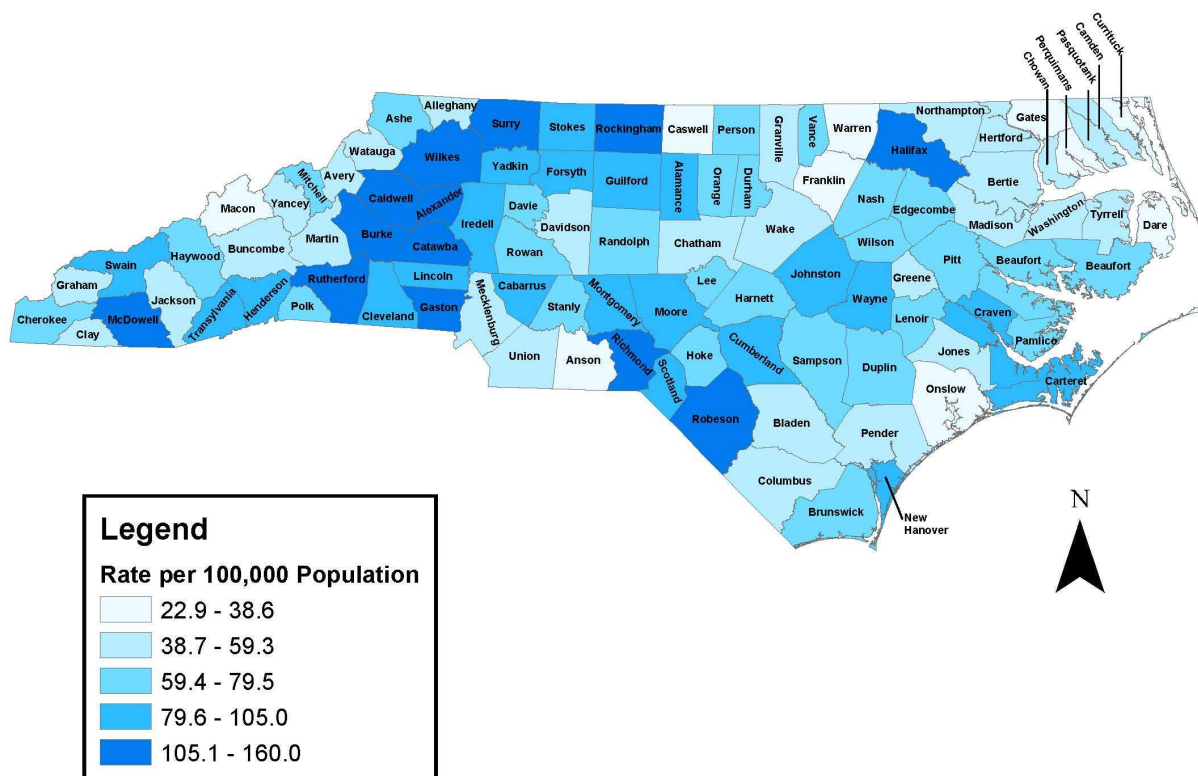


Table 15: Self-Inflicted Injury Hospitalizations for Ages 10 or Older by North Carolina County of Residence (2004-2008)

County	Number	Rate	County	Number	Rate	County	Number	Rate
Alamance	536	86.8	Franklin	88	36.5	Pamlico	41	71.9
Alexander	178	113.1	Gaston	1,016	117.9	Pasquotank	86	50.4
Alleghany	25	51.3	Gates	13	25.9	Pender	99	47.0
Anson	43	38.6	Graham	18	51.9	Perquimans	16	29.6
Ashe	75	66.4	Granville	142	59.2	Person	98	60.5
Avery	38	47.0	Greene	52	58.8	Pitt	510	79.5
Beaufort	133	66.8	Guilford	1,815	91.9	Polk	59	69.3
Bertie	39	46.5	Halifax	294	121.6	Randolph	435	72.7
Bladen	80	57.1	Harnett	320	71.1	Richmond	238	119.6
Brunswick	293	70.9	Haywood	191	76.2	Robeson	636	118.4
Buncombe	543	55.3	Henderson	451	103.9	Rockingham	513	126.8
Burke	628	160.0	Hertford	44	42.7	Rowan	430	72.6
Cabarrus	559	84.4	Hoke	104	62.2	Rutherford	294	106.5
Caldwell	389	112.1	Hyde	17	70.6	Sampson	182	67.6
Camden	18	45.3	Iredell	586	93.4	Scotland	151	95.5
Carteret	261	92.9	Jackson	78	48.4	Stanly	198	76.9
Caswell	27	25.9	Johnston	524	82.2	Stokes	212	105.0
Catawba	869	131.1	Jones	22	48.6	Surry	354	112.3
Chatham	120	46.1	Lee	189	78.0	Swain	60	103.0
Cherokee	83	71.8	Lenoir	194	78.1	Transylvania	118	88.0
Chowan	29	45.8	Lincoln	323	104.6	Tyrrell	8	43.1
Clay	25	55.6	McDowell	205	107.6	Union	348	48.2
Cleveland	407	95.1	Macon	45	31.3	Vance	133	72.5
Columbus	117	50.1	Madison	39	43.7	Wake	1,544	45.8
Craven	405	99.8	Martin	62	59.3	Warren	26	29.7
Cumberland	1,177	90.5	Mecklenburg	1,907	54.2	Washington	32	56.2
Currituck	36	35.3	Mitchell	49	69.4	Watauga	111	54.7
Dare	34	22.9	Montgomery	98	83.8	Wayne	476	98.1
Davidson	398	59.0	Moore	309	85.0	Wilkes	352	120.6
Davie	119	68.9	Nash	240	60.4	Wilson	250	76.2
Duplin	136	61.1	New Hanover	688	84.4	Yadkin	152	92.9
Durham	674	63.1	Northampton	40	43.2	Yancey	38	46.8
Edgecombe	148	64.3	Onslow	233	34.7			
Forsyth	1,423	99.7	Orange	430	78.6			

Crude rate per 100,000 population in the N.C. county

Top 20 counties with the highest self-inflicted injury hospitalization rates are shown in bold.

Figure 16: Map of Self-Inflicted Injury Emergency Department Visit Rates for Ages 10 or Older by North Carolina County of Residence (2004-2008)

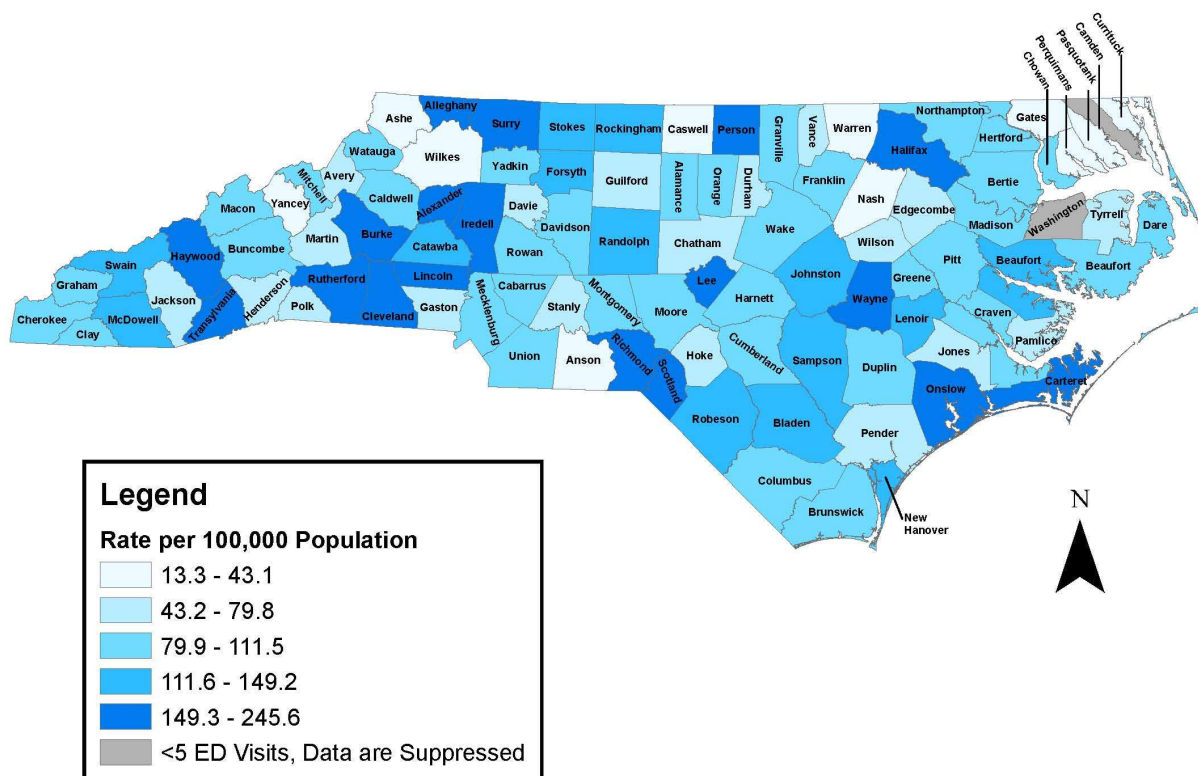


Table 16: Self-Inflicted Injury Emergency Department Visits for Ages 10 or Older by North Carolina County of Residence (2006-2008)

County	Number	Rate	County	Number	Rate	County	Number	Rate
Alamance	324	86.0	Franklin	153	103.2	Pamlico	24	70.1
Alexander	153	160.1	Gaston	329	62.6	Pasquotank	14	13.3
Alleghany	56	190.5	Gates	8	25.9	Pender	94	71.7
Anson	24	36.0	Graham	23	111.5	Perquimans	11	33.1
Ashe	14	20.6	Granville	147	100.1	Person	156	159.5
Avery	28	57.5	Greene	59	109.0	Pitt	418	106.2
Beaufort	179	149.2	Guilford	883	73.2	Polk	35	68.0
Bertie	53	104.7	Halifax	274	189.5	Randolph	495	136.2
Bladen	106	126.6	Harnett	265	95.4	Richmond	252	211.2
Brunswick	241	92.4	Haywood	312	206.6	Robeson	425	130.9
Buncombe	595	99.6	Henderson	160	60.3	Rockingham	322	132.3
Burke	454	192.3	Hertford	51	82.7	Rowan	340	94.6
Cabarrus	457	111.0	Hoke	77	74.3	Rutherford	337	202.9
Caldwell	213	101.7	Hyde	14	98.6	Sampson	214	131.5
Camden	3	12.1	Iredell	648	166.4	Scotland	155	163.5
Carteret	291	171.7	Jackson	76	78.0	Stanly	124	79.8
Caswell	27	43.1	Johnston	493	124.4	Stokes	178	145.6
Catawba	479	118.8	Jones	21	77.2	Surry	351	185.2
Chatham	86	53.7	Lee	235	159.0	Swain	46	130.8
Cherokee	64	90.8	Lenoir	199	134.2	Transylvania	199	245.6
Chowan	38	99.2	Lincoln	290	152.6	Tyrrell	6	54.0
Clay	23	83.3	McDowell	137	119.3	Union	476	103.4
Cleveland	489	189.6	Macon	91	104.5	Vance	60	54.6
Columbus	136	97.1	Madison	47	87.0	Wake	2093	99.2
Craven	270	110.2	Martin	35	56.4	Warren	18	34.5
Cumberland	850	108.7	Mecklenburg	2161	99.0	Washington	3	8.8
Currituck	14	22.3	Mitchell	39	92.2	Watauga	116	94.3
Dare	79	88.9	Montgomery	67	95.3	Wayne	476	164.0
Davidson	436	106.7	Moore	214	96.5	Wilkes	68	38.8
Davie	71	67.0	Nash	41	17.0	Wilson	137	69.1
Duplin	126	93.5	New Hanover	633	126.7	Yadkin	97	98.1
Durham	332	50.9	Northampton	59	106.9	Yancey	17	34.6
Edgecombe	94	68.4	Onslow	706	174.5			
Forsyth	1052	120.9	Orange	306	91.6			

Crude rate per 100,000 population in the N.C. county

Top 20 counties with the highest self-inflicted injury emergency visit rates are shown in bold.

Suicide Method

Table 17: Method of Suicide for Ages 10 or Older in North Carolina by Gender (2004-2008)

Method	Male		Female		TOTAL	
	Number	Percent	Number	Percent	Number	Percent
Firearm	2,683	65.1	485	38.9	3,168	59.0
Poisoning	528	12.8	512	41.1	1,040	19.4
Hanging, Strangulation, Suffocation	744	18.1	159	12.8	903	16.8
Sharp Instrument	57	1.4	18	1.4	75	1.4
Drowning	29	0.7	20	1.6	49	0.9
Fall	23	0.6	18	1.4	41	0.8
Fire/ Burn	23	0.6	15	1.2	38	0.7
Other Transport Vehicle	16	0.4	7	0.6	23	0.4
Motor Vehicle	12	0.3	8	0.6	20	0.4
Other / Unknown	5	0.1	4	0.3	9	0.2
TOTAL	4,120	100	1,246	100	5,366	100

Table 18: Type of Firearm for Suicide Firearm Deaths for Ages 10 or Older in North Carolina by Gender (2004-2008)

Firearm Type	Male		Female		TOTAL	
	Number	Percent	Number	Percent	Number	Percent
Handgun	1,739	64.8	406	83.7	2,145	67.7
Shotgun	584	21.8	30	6.2	614	19.4
Rifle	328	12.2	44	9.1	372	11.7
Other	3	0.1	0	0.0	3	0.1
Unknown Type	29	1.1	5	1.0	34	1.1
TOTAL	2,683	100	485	100	3,168	100

Table 19: Type of Poison for Suicide Poisoning Deaths for Ages 10 or Older in North Carolina by Gender (2004-2008)

Poison Type	Male		Female		TOTAL	
	Number	Percent	Number	Percent	Number	Percent
Pharmaceutical - Prescription	310	58.7	421	82.2	731	70.3
Carbon Monoxide or Other Gas	153	29.0	41	8.0	194	18.7
Pharmaceutical - Over-the-Counter	28	5.3	34	6.6	62	6.0
Other (e.g., Rat Poison, Insecticide, Lye)	22	4.2	7	1.4	29	2.8
Street / Recreational Drugs	6	1.1	4	0.8	10	1.0
Alcohol	2	0.4	2	0.4	4	0.4
Pharmaceutical - Unknown	2	0.4	1	0.2	3	0.3
Unknown	5	0.9	2	0.4	7	0.7
TOTAL	528	100	512	100	1,040	100

Self-Inflicted Injury Type

Table 20: Type of Self-Inflicted Injury Hospitalizations for Ages 10 or Older in North Carolina by Gender (2004-2008)

Self-Inflicted Injury Type	Male		Female		TOTAL	
	Number	Percent	Number	Percent	Number	Percent
Poisoning	8,997	76.8	15,062	86.7	24,059	82.7
Cut / Pierce	1,633	14.0	1,817	10.5	3,451	11.9
Other Specified / Not Classified	295	2.5	179	1.0	474	1.6
Firearm	371	3.2	97	0.6	468	1.6
Suffocation	117	1.0	38	0.2	155	0.5
Other Specified / Classified	100	0.9	37	0.2	137	0.5
Fire / Burn	60	0.5	43	0.3	103	0.4
Unspecified	43	0.4	52	0.3	95	0.3
Fall	65	0.6	29	0.2	94	0.3
Motor Vehicle Transport	24	0.2	18	0.1	42	0.1
Drowning	3	0.03	4	0.02	7	0.02
Natural / Environmental	2	0.02	4	0.02	6	0.02
TOTAL	11,710	100	17,380	100	29,091	100

Table 21: Type of Self-Inflicted Injury Emergency Department Visits for Ages 10 or Older in North Carolina by Gender (2006-2008)

Self-Inflicted Injury Type	Male		Female		TOTAL	
	Number	Percent	Number	Percent	Number	Percent
Poisoning	6,663	62.9	10,934	76.6	17,598	70.8
Cut/Pierce	2,646	25.0	2,763	19.4	5,409	21.8
Other Specified / Not Classified	555	5.2	264	1.9	819	3.3
Firearm	243	2.3	47	0.3	290	1.2
Unspecified	141	1.3	143	1.0	284	1.1
Suffocation	140	1.3	31	0.2	171	0.7
Other Specified/ Classified	84	0.8	20	0.1	104	0.4
Fall	59	0.6	28	0.2	87	0.4
Fire/Burn	37	0.4	29	0.2	66	0.3
Motor Vehicle Transport	16	0.2	13	0.1	29	0.1
Drowning	3	0.03	5	0.04	8	0.03
Natural / Environmental	1	0.01	1	0.01	2	0.01
TOTAL	10,588	100	14,278	100	24,867	100

Suicide Circumstances

Table 22: Circumstances of Suicide Victims for Ages 10 or Older in North Carolina (2004-2008)

Circumstance**	Male		Female		TOTAL	
	Number	Percent	Number	Percent	Number	Percent
Mental Health						
Current depressed mood	1,764	46.6	532	45.3	2,296	46.3
Current mental health problem	1,574	41.6	784	66.8	2,358	47.5
Current treatment for mental illness	1,389	36.7	739	63.0	2,128	42.9
Ever treated for mental illness	1,538	40.6	780	66.4	2,318	46.7
Substance Abuse						
Alcohol problem	562	14.8	135	11.5	697	14.1
Other substance problem	457	12.1	178	15.2	635	12.8
Interpersonal						
Intimate partner problem	1,085	28.6	246	21.0	1,331	26.8
Other relationship problem	276	7.3	86	7.3	362	7.3
Recent suicide of friend/family (past 5 years)	43	1.1	14	1.2	57	1.2
Other death of friend/family	150	4.0	56	4.8	206	4.2
Perpetrator of interpersonal violence in past	303	8.0	17	1.5	320	6.5
Victim of interpersonal violence in past month	10	0.3	20	1.7	30	0.6
Life Stressor						
Crisis within two weeks	1,452	38.3	328	27.9	1,780	35.9
Physical health problem	770	20.3	220	18.7	990	20.0
Job problem	307	8.1	45	3.8	352	7.1
School problem	15	0.4	4	0.3	19	0.4
Financial problem	276	7.3	53	4.5	329	6.6
Recent criminal-related legal problem	353	9.3	32	2.7	385	7.8
Other legal problems	90	2.4	18	1.5	108	2.2
Suicide Event						
Left a suicide note	1,037	27.4	369	31.4	1,406	28.3
Disclosed intent to complete suicide	950	25.1	240	20.4	1,190	24.0
History of suicide attempts	469	12.4	341	29.1	810	16.3

** Circumstances were available for 91.9 percent (3,788/4,120) of males, 94.2 percent (1,174/1,246) of females and 92.5 percent (4,962/5,366) of all suicide victims. The percentage of circumstances for suicide victims is based on the number of cases reporting circumstances in North Carolina over 2004-2008.

NOTE: Each victim may have more than one circumstance. Accordingly, the total number of circumstances may exceed the total number of suicides.

Table 23: Current Mental Health Problem at the Time of Suicide for Ages 10 or Older in North Carolina (2004-2008)

Current Mental Health Problem **	Male		Female		TOTAL	
	Number	Percent	Number	Percent	Number	Percent
Depression / Dysthymia	1,276	81.1	649	82.8	1,925	81.6
Bipolar Disorder	140	8.9	91	11.6	231	9.8
Schizophrenia	53	3.4	13	1.7	66	2.8
Anxiety Disorder	37	2.4	13	1.7	50	2.1
Post-Traumatic Stress Disorder	8	0.5	0	0.0	8	0.3
Attention Deficit Disorder (ADD) or Hyper-Reactivity Disorder	7	0.4	0	0.0	7	0.3
Eating Disorder	0	0.0	5	0.6	5	0.2
Obsessive-Compulsive Disorder	0	0.0	1	0.1	1	0.0
Other	31	2.0	4	0.5	35	1.5
Unknown / Missing	58	3.7	23	2.9	81	3.4

** For 1,574 males, 784 females and 2,358 total suicide victims with a current mental health problem

NOTE: Victims may have more than one current mental health problem

Toxicology Testing

Table 24: Toxicology Testing and Results Associated with Suicides for Ages 10 or Older in North Carolina (2004-2008)

	Male		Female		TOTAL	
	Number	Percent	Number	Percent	Number	Percent
Alcohol						
Tested with results	3,418	83.0	1,060	85.1	4,478	83.5
Alcohol present in those tested	1,056	30.9	238	22.5	1,294	28.9
Antidepressant						
Tested with results	199	4.8	320	25.7	519	9.7
Antidepressant present in those tested	181	91.0	309	96.6	490	94.4
Amphetamines						
Tested with results	28	0.7	43	3.5	71	1.3
Amphetamines present in those tested	9	32.1	16	37.2	25	35.2
Cocaine						
Tested with results	285	6.9	276	22.2	561	10.5
Cocaine present in those tested	68	23.9	35	12.7	103	18.4
Marijuana						
Tested with results	19	0.5	24	1.9	43	0.8
Marijuana present in those tested	6	31.6	1	4.2	7	16.3
Opiates						
Tested with results	334	8.1	370	29.7	704	13.1
Opiates present in those tested	216	64.7	259	70.0	475	67.5
Other Drugs						
Tested with results	464	11.3	443	35.6	907	16.9
Other drugs present in those tested	438	94.4	420	94.8	858	94.6

Table 25: Alcohol Toxicology Testing and Results Associated with Suicides for Ages 10 or Older in North Carolina by Age Group and Race (2004-2008)

Age group (years)	Alcohol tested with results		Alcohol present in those tested	
	Number	Percent	Number	Percent
10-14	28	80.0	1	2.9
15-19	192	88.1	29	13.3
20-24	364	85.5	137	32.2
25-34	681	83.9	231	28.5
35-44	955	84.3	335	29.6
45-54	969	85.5	320	28.2
55-64	600	81.9	154	21.0
65-74	355	80.1	57	12.9
75-84	252	79.0	27	8.5
85 +	84	74.3	3	2.7
Race	Number	Percent	Number	Percent
American Indian	44	88.0	16	32.0
Asian / Pacific Islander	40	83.3	8	16.7
Black	426	87.7	94	19.3
Other / Unspecified	4	80.0	2	40.0
White	3,966	83.0	1,174	24.6

Suicidal Injury Location

Table 26: Suicidal Injury Location Ages 10 or Older in North Carolina (2004-2008)

	Number	Percent
House, Apartment	4,398	82.0
Natural Area (e.g., field, river, beaches, woods)	203	3.8
Motor Vehicle (excluding school bus and public transportation)	168	3.1
Street/road, sidewalk, alley	102	1.9
Hotel/Motel	93	1.7
Jail, prison, detention facility	49	0.9
Park, playground, public use area	45	0.8
Other commercial establishment (e.g., grocery store, retail outlet, laundromat)	42	0.8
Parking lot/public parking garage	42	0.8
Hospital or medical facility	33	0.6
Highway/Freeway	31	0.6
Synagogue, church, temple	22	0.4
Office building	19	0.4
Other Specified *	59	1.1
Other Not Specified	24	0.5
Unknown	36	0.7
TOTAL	5,366	100

* Other Specified with less than 0.3 percent of suicidal injuries by location type included: farm, industrial or construction area, sports or athletic area; college or university; abandoned house, building or warehouse; supervised residential facility; bar or nightclub; public transportation; and school.

YOUTH AND YOUNG ADULT (AGES 10 TO 24) SUICIDE

Suicidal behavior in youth and young adults (ages 10 to 24 years) is a significant concern because this age group has the highest rates of self-inflicted injury requiring hospitalization or a visit to the emergency department. This section presents statistics for ages 10 to 24 years on completed suicides and suicide attempts based on hospitalizations and emergency department visits for self-inflicted injuries in North Carolina.

KEY FINDINGS:

Youth and Young Adult Suicide and Self-Inflicted Injuries over Time

During 2004 to 2008 in North Carolina, 679 suicides (7.5 per 100,000) and 7,167 self-inflicted injury hospitalizations (79.7 per 100,000) were reported in ages 10 to 24 years (Table 27). In addition, 8,336 emergency visits (152.3 per 100,000) for self-inflicted injury occurred among youth and young adults in North Carolina from 2006 to 2008. Thus, youth and young adults had substantially higher rates of suicide attempts compared to the suicide rate. Crude and age-adjusted rates (Figure 17) were comparable and remained relatively constant over time.

Demographics of Youth and Young Adult Suicide and Self-Inflicted Injury Victims

Demographic characteristics for youth and young adult suicide victims in North Carolina in 2004 to 2008 are shown by year in Table 28 and for the aggregate 5-year period in Table 29. The majority of North Carolina suicide victims ages 10 to 24 years were male (83.8%), white (77.6%) and non-Hispanic (94.1%). For the 10 to 24 age group, males were 4.9 times more likely to die from suicide than females (12.2 vs. 2.5 per 100,000, respectively). Although whites comprised the largest proportion of youth and young adult suicide victims at a suicide rate of 8.4 per 100,000, American Indians had the highest suicide rate by race in this age group of 10.1 per 100,000 based on only 14 deaths. Non-Hispanics and Hispanics had similar suicide rates in ages 10 to 24 years (7.7 vs. 5.9 per 100,000, respectively). Young adults aged 20 to 24 years had the highest percentage (62.7) and rate (14.1 per 100,000) of suicides.

Contrary to suicide trends, self-inflicted injury hospitalizations (Table 30 and Table 31) and self-inflicted injury emergency department visits (Table 32 and Table 33) in North Carolina were more common in females than males among ages 10 to 24. In this age group, females as compared to males were 1.8 times more likely to be hospitalized (103.6 vs. 57.4 per 100,000, respectively) and 1.6 times more likely to visit an emergency department (190.3 vs. 117.0 per 100,000, respectively) for self-inflicted injury. The self-inflicted injury hospitalization rate was highest for ages 20 to 24 (110.2 per 100,000) and ages 15 to 19 (103.6 per 100,000). Furthermore, the self-inflicted injury emergency department visit rate was highest for ages 15 to 19 (210.6 per 100,000) and ages 20 to 24 (191.8 per 100,000).

Across all youth and young adult age groups, males had a higher suicide rate than females (Table 34); whereas, females had a higher self-inflicted injury hospitalization rate (Table 35) and emergency department visit rate (Table 36) than males. For both genders, ages 20 to 24 had the highest suicide rate per 100,000 (23.1 for males and 4.0 for females). Moreover, ages 20 to 24 had the highest self-inflicted injury hospitalization rate (88.2 per 100,000) and emergency department visit rate (163.1 per 100,000) among males. Conversely for females, ages 15 to 19 had the highest self-inflicted injury hospitalization rate (136.9 per 100,000) and emergency department visit rate (271.5 per 100,000).

For youth and young adults, whites comprised 77.5 percent of male suicide victims with a suicide rate of 13.5 per 100,000 and 78.2 percent of female suicide victims with a suicide rate of 2.9 per 100,000 (Table 37). American Indians accounted for only 2.5 percent of male youth and young adult suicide victims but had the highest suicide rate (19.6 per 100,000) among males ages 10 to 24.

Suicide Method for Youth and Young Adults

The leading methods of suicide in North Carolina youth and young adults from 2004 to 2008 were firearm (57.3%), hanging, strangulation or suffocation (28.9%) and poisoning (8.3%) (Table 38). Firearm was the most common suicide method for both males (60.5%) and females (40.9%) in the 10 to 24 age group.

Self-Inflicted Injury Type for Youth and Young Adults

In North Carolina from 2004 to 2008, the most common self-inflicted injuries necessitating hospitalization in ages 10 to 24 were poisoning injuries (76.5%) and cut or pierce injuries (18.1%) (Table 39). Similarly, poisoning injuries (63.5%) and cut or pierce injuries (27.7%) were the leading types of self-inflicted injuries treated in emergency departments in youth and young adults (Table 40).

Suicide Circumstances for Youth and Young Adults

Circumstances surrounding youth and young adult suicides in North Carolina in 2004 to 2008 were available in NC-VDRS for 86.3 percent of victims (Table 41). The most common circumstance for 47.3 percent of victims ages 10 to 24 was a crisis within two weeks. Mental health circumstances were also common in youth and young adults with 36.4 percent having a depressed mood; 34.8 percent having a current mental health problem; and 34.0 percent having ever been treated for mental illness. At the time of suicide, the most common current mental health problems for ages 10 to 24 were depression or dysthymia (67.2%), bipolar disorder (13.7%), schizophrenia (7.8%), attention deficit disorder (2.9%) and anxiety disorder (2.0%) (Table 42).

Other common suicide circumstances in ages 10 to 24 were an intimate partner problem (31.9%), other relationship problem (17.1%), substance abuse problem excluding alcohol (15.7%) and recent criminal-related legal problem (13.7%). Of suicide victims ages 10 to 24, 22.9 percent left a suicide note, 20.7 percent disclosed intent to complete suicide, and 14.2 percent had a history of suicide attempts.

Suicidal Behavior from the North Carolina Youth Risk Behavior Survey

The Youth Risk Behavior Survey was conducted in 2005, 2007 and 2009 under the Healthy Schools Initiative by the North Carolina Department of Public Instruction and the North Carolina Division of Public Health to assess risk behaviors in North Carolina high school students, including questions on suicide ideation and attempts (Table 43). Depending upon the survey year, 26.5 to 27.4 percent of high school students felt so sad or hopeless almost every day for two weeks that they had stopped doing some usual activities during the past 12 months; 12.5 to 15.6 percent of high school students had seriously considered attempting suicide during the past 12 months; 9.5 to 13.1 percent of high school students had made a plan about how they would attempt suicide during the past 12 months; and 9.9 to 13.3 percent of high school students actually had attempted suicide one or more times during the past 12 months.

Youth and Young Adult Suicide and Self-Inflicted Injuries Over Time

Table 27: Youth and Young Adult (Ages 10-24) Suicides, Self-Inflicted Injury Hospitalizations and Self-Inflicted Injury Emergency Department Visits in North Carolina by Year

Year	Suicides			Hospitalizations			Emergency Department Visits		
	Number	Rate	95% CI	Number	Rate	95% CI	Number	Rate	95% CI
2004	137	7.8	6.5 - 9.1	1,387	79.0	74.9 - 83.2	NA*	NA*	NA*
2005	121	6.8	5.6 - 8.1	1,324	74.8	70.8 - 78.9	NA*	NA*	NA*
2006	155	8.6	7.3 - 10.0	1,368	76.1	72.0 - 80.1	2444 ‡	135.9 ‡	130.5 - 141.3 ‡
2007	131	7.2	6.0 - 8.4	1,532	84.0	79.8 - 88.2	3157	173.2	167.1 - 179.2
2008	135	7.3	6.1 - 8.5	1,556	84.1	79.9 - 88.2	2735	147.8	142.2 - 153.3
TOTAL	679	7.5	7.0 - 8.1	7,167	79.7	77.8 - 81.5	8,336	152.3	149.1 - 155.6

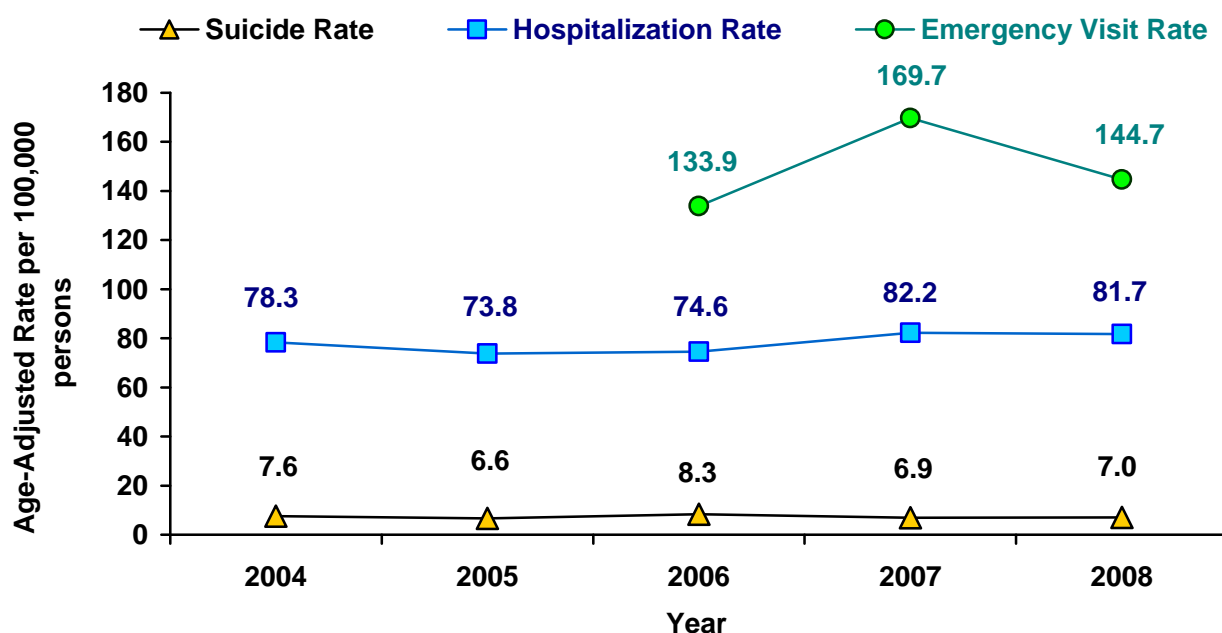
Crude rate per 100,000 N.C. population ages 10-24

* Emergency department visit data are not available for 2004-2005

95% CI = 95 Percent Confidence Interval for Rate

‡ Only 79 percent of emergency departments reporting in 2006

Figure 17: Age-Adjusted Rate of Youth and Young Adult (Ages 10-24) Suicides, Self-Inflicted Injury Hospitalizations and Self-Inflicted Injury Emergency Visits in North Carolina Over Time



Demographics of Youth and Young Adult Suicide and Self-Inflicted Injury Victims

Table 28: Demographics of Youth and Young Adult (Ages 10-24) Suicide Victims in North Carolina by Year

	2004		2005		2006		2007		2008	
Gender	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Male	116	12.8	100	10.9	133	14.2	109	11.6	111	11.6
Female	21	2.5	21	2.5	22	2.5	22	2.5	24	2.7
Race										
American Indian	3	*	2	*	2	*	3	*	4	*
Asian/Pacific Islander	2	*	1	*	2	*	1	*	1	*
Black	24	5.1	27	5.7	25	5.2	25	5.1	30	6.1
White	108	8.8	91	7.4	126	10.1	102	8.0	100	7.8
Hispanic Ethnicity										
Hispanic	4	*	7	5.5	13	9.8	4	*	12	8.0
Non-Hispanic	133	8.2	114	6.9	142	8.5	127	7.5	123	7.2
Age Group (Years)										
10-14	9	1.5	7	1.2	7	1.2	7	1.2	5	0.8
15-19	46	8.1	38	6.5	47	7.8	43	6.9	44	7.0
20-24	82	13.8	76	12.8	101	16.7	81	13.3	86	13.7
TOTAL	137	7.8	121	6.8	155	8.6	131	7.2	135	7.3

Gender, race, Hispanic ethnicity or age-specific crude rate per 100,000 N.C. population ages 10-24

* The number of deaths was too small to support calculation of a rate.

Table 29: Demographics of Youth and Young Adult (Ages 10-24) Suicide Victims in North Carolina (2004-2008)

Gender	Number	Percent	Rate	95% CI
Male	569	83.8	12.2	11.2 - 13.2
Female	110	16.2	2.5	2.1 - 3.0
Race				
American Indian	14	2.1	10.1	4.8 - 15.3
Asian / Pacific Islander	7	1.0	3.9	1.0 - 6.7
Black	131	19.3	5.4	4.5 - 6.4
White	527	77.6	8.4	7.7 - 9.1
Hispanic				
Hispanic	40	5.9	5.9	4.1 - 7.8
Non-Hispanic	639	94.1	7.7	7.1 - 8.3
Age Group (Years)				
10-14	35	5.2	1.2	0.8 - 1.6
15-19	218	32.1	7.2	6.3 - 8.2
20-24	426	62.7	14.1	12.7 - 15.4
TOTAL	679	100	7.5	7.0 - 8.1

Gender, race, Hispanic ethnicity or age-specific crude rate per 100,000 N.C. population ages 10-24

95% CI = 95 Percent Confidence Interval for Rate

Table 30: Demographics of Youth and Young Adult (Ages 10-24) Self-Inflicted Injury Hospitalizations in North Carolina by Year

	2004		2005		2006		2007		2008	
Gender	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Male	479	52.9	495	54.2	511	54.7	601	63.8	585	60.9
Female	908	107.0	829	96.9	857	99.1	931	105.7	971	109.0
Age Group (Years)										
10-14	160	27.1	130	22.1	131	22.3	148	25.0	139	23.4
15-19	593	103.8	587	99.8	620	102.6	670	107.9	652	103.7
20-24	634	106.9	607	102.5	617	101.8	714	116.9	765	122.0
TOTAL	1,387	79.0	1,324	74.8	1,368	76.1	1,532	84.0	1,556	84.1

Gender or age-specific crude rate per 100,000 N.C. population ages 10-24

Table 31: Demographics of Youth and Young Adult (Ages 10-24) Self-Inflicted Injury Hospitalizations in North Carolina (2004-2008)

Gender	Number	Percent	Rate	95% CI
Male	2,671	37.3	57.4	55.2 - 59.5
Female	4,496	62.7	103.6	100.6 - 106.6
Age Group (Years)				
10-14	708	9.9	24.0	22.2 - 25.7
15-19	3,122	43.6	103.6	100.0 - 107.2
20-24	3,337	46.6	110.2	106.4 - 113.9
TOTAL	7,167	100	79.7	77.8 - 81.5

Gender or age-specific crude rate per 100,000 N.C. population ages 10-24

95% CI = 95 Percent Confidence Interval for Rate

Table 32: Demographics of Youth and Young Adult (Ages 10-24) Self-Inflicted Injury Emergency Department Visits in North Carolina by Year

	2006 ‡		2007		2008	
Gender	Number	Rate	Number	Rate	Number	Rate
Male	965	103.3	1,278	135.6	1,075	112.0
Female	1,479	171.1	1,879	213.4	1,659	186.2
Age Group (Years)						
10-14	270	45.9	318	53.7	307	51.6
15-19	1,174	194.2	1,454	234.3	1,277	203.0
20-24	1,000	165.0	1,385	226.8	1,151	183.6
TOTAL	2,444	135.9	3,157	173.2	2,735	147.8

Rate is gender or age-specific crude rate per 100,000 N.C. population ages 10-24

‡ Only 79 percent of emergency departments reporting in 2006

Table 33: Demographics of Youth and Young Adult (Ages 10-24) Self-Inflicted Injury Emergency Department Visits in North Carolina, 2006-2008

Gender	Number	Percent	Rate	95% CI
Male	3,319	39.8	117.0	113.0 – 121.0
Female	5,017	60.2	190.3	185.1 - 195.6
Age Group (Years)				
10-14	895	10.7	50.4	47.1 - 53.7
15-19	3905	46.9	210.6	204.0 - 217.2
20-24	3536	42.4	191.8	185.5 - 198.1
TOTAL	8,336	100	152.3	149.1 - 155.6

Gender or age-specific crude rate per 100,000 N.C. population ages 10-24

95% CI = 95 Percent Confidence Interval for Rate

Age and Gender

Table 34: Youth and Young Adult (Ages 10-24) Suicides in North Carolina by Age and Gender (2004-2008)

Age (Years)	Male			Female		
	Number	Percent	Rate	Number	Percent	Rate
10-14	28	4.9	1.9	7	6.4	0.5
15-19	173	30.4	11.2	45	40.9	3.1
20-24	368	64.7	23.1	58	52.7	4.0
TOTAL	569	100	12.2	110	100	2.5

Gender and age-specific crude rate per 100,000 N.C. population ages 10-24

Table 35: Youth and Young Adult (Ages 10-24) Self-Inflicted Injury Hospitalizations in North Carolina by Age and Gender (2004-2008)

Age (Years)	Male			Female		
	Number	Percent	Rate	Number	Percent	Rate
10-14	150	5.6	9.9	558	12.4	38.7
15-19	1,114	41.7	72.0	2,008	44.7	136.9
20-24	1,407	52.7	88.2	1,930	42.9	134.6
TOTAL	2,671	100	57.4	4,496	100	103.6

Gender and age-specific crude rate per 100,000 N.C. population ages 10-24

Table 36: Youth and Young Adult (Ages 10-24) Self-Inflicted Injury Emergency Department Visits in North Carolina by Age and Gender (2006-2008)

Age (Years)	Male			Female		
	Number	Percent	Rate	Number	Percent	Rate
10-14	273	8.2	30.0	622	12.4	71.9
15-19	1,455	43.8	152.9	2,450	48.8	271.5
20-24	1,591	47.9	163.1	1,945	38.8	224.0
TOTAL	3,319	100	117.0	5,017	100	190.3

Gender and age-specific crude rate per 100,000 N.C. population ages 10-24

Race and Gender

Table 37: Youth and Young Adult (Ages 10-24) Suicides in North Carolina by Race and Gender (2004-2008)						
	Male			Female		
Race	Number	Percent	Rate	Number	Percent	Rate
American Indian	14	2.5	19.6	0	0.0	*
Asian/Pacific Islander	5	0.9	5.3	2	1.8	*
Black	109	19.2	8.9	22	20.0	1.8
White	441	77.5	13.5	86	78.2	2.9
TOTAL	569	100	12.2	110	100	2.5

Gender and race-specific crude rate per 100,000 N.C. population ages 10-24

* The number of deaths was zero or too small to support calculation of a rate.

Suicide Method for Youth and Young Adults

Table 38: Method of Youth and Young Adult (Ages 10-24) Suicides in North Carolina by Gender (2004-2008)						
	Male		Female		TOTAL	
Method	Number	Percent	Number	Percent	Number	Percent
Firearm	344	60.5	45	40.9	389	57.3
Hanging, Strangulation, Suffocation	157	27.6	39	35.5	196	28.9
Poisoning	39	6.9	17	15.5	56	8.3
Fall	8	1.4	4	3.6	12	1.8
Drowning	5	0.9	3	2.7	8	1.2
Motor Vehicle	6	1.1	2	1.8	8	1.2
Other Transport Vehicle	4	0.7	0	0.0	4	0.6
Fire/ Burn	4	0.7	0	0.0	4	0.6
Sharp Instrument	2	0.4	0	0.0	2	0.3
TOTAL	569	100	110	100	679	100

Self-Inflicted Injury Type for Youth and Young Adults

Table 39: Type of Youth and Young Adult (Ages 10-24) Self-Inflicted Injury Hospitalizations in North Carolina by Gender (2004-2008)

	Male		Female		TOTAL	
Self-Inflicted Injury Type	Number	Percent	Number	Percent	Number	Percent
Poisoning	1,911	71.6	3,570	79.4	5,481	76.5
Cut/Pierce	494	18.5	803	17.9	1,297	18.1
Other Specified / Not Classified	73	2.7	55	1.2	128	1.8
Firearm	75	2.8	7	0.2	82	1.1
Suffocation	43	1.6	15	0.3	58	0.8
Other Specified / Classified	17	0.6	5	0.1	22	0.3
Fire/Burn	17	0.6	4	0.1	21	0.3
Unspecified	14	0.5	21	0.5	35	0.5
Fall	18	0.7	10	0.2	28	0.4
Motor Vehicle Transport	9	0.3	6	0.1	15	0.2
TOTAL	2,671	100	4,496	100	7,167	100

Table 40: Type of Youth and Young Adult (Ages 10-24) Self-Inflicted Injury Emergency Department Visits in North Carolina by Gender (2006-2008)

	Male		Female		TOTAL	
Self-Inflicted Injury Type	Number	Percent	Number	Percent	Number	Percent
Poisoning	1,868	56.3	3,428	68.3	5,296	63.5
Cut/Pierce	954	28.7	1,357	27.1	2,311	27.7
Other Specified / Not Classified	272	8.2	120	2.4	392	4.7
Unspecified	67	2.0	66	1.3	133	1.6
Suffocation	59	1.8	14	0.3	73	0.9
Firearm	44	1.3	4	0.1	48	0.6
Fall	15	0.5	12	0.2	27	0.3
Fire/Burn	15	0.5	9	0.2	24	0.3
Other Specified / Classified	20	0.6	2	0.0	22	0.3
Motor Vehicle Transport	5	0.2	4	0.1	9	0.1
Drowning	0	0.0	1	0.0	1	0.0
TOTAL	3,319	100	5,017	100.0	8,336	100

Suicide Circumstances for Youth and Young Adults

Table 41: Circumstances of Youth and Young Adult (Ages 10-24) Suicide Victims in North Carolina (2004-2008)

Circumstance**	Male		Female		TOTAL	
	Number	Percent	Number	Percent	Number	Percent
Mental Health						
Current depressed mood	172	35.2	41	42.3	213	36.4
Current mental health problem	155	31.7	49	50.5	204	34.8
Current treatment for mental illness	128	26.2	44	45.4	172	29.4
Ever treated for mental illness	150	30.7	49	50.5	199	34.0
Substance Abuse						
Alcohol problem	38	7.8	3	3.1	41	7.0
Other substance problem	79	16.2	13	13.4	92	15.7
Interpersonal						
Intimate partner problem	155	31.7	32	33.0	187	31.9
Other relationship problem	85	17.4	15	15.5	100	17.1
Recent suicide of friend/family (past 5 years)	11	2.3	4	4.1	15	2.6
Other death of friend/family	15	3.1	1	1.0	16	2.7
Perpetrator of interpersonal violence in past	32	6.5	2	2.1	34	5.8
Victim of interpersonal violence in past month	2	0.4	2	2.1	4	0.7
Life Stressor						
Crisis within two weeks	239	48.9	38	39.2	277	47.3
Physical health problem	13	2.7	5	5.2	18	3.1
Job problem	27	5.5	5	5.2	32	5.5
School problem	14	2.9	3	3.1	17	2.9
Financial problem	22	4.5	2	2.1	24	4.1
Recent criminal or legal problem	75	15.3	5	5.2	80	13.7
Other legal problems	6	1.2	0	0.0	6	1.0
Suicide Event						
Left a suicide note	102	20.9	32	33.0	134	22.9
Disclosed intent to complete suicide	101	20.7	20	20.6	121	20.7
History of suicide attempts	61	12.5	22	22.7	83	14.2

** Circumstances were available for 85.9 percent (489/569) of males, 88.2 percent (97/110) of females and 86.3 percent (586/679) of all youth and young adult (ages 10-24) suicide victims

NOTE: Each victim may have more than one circumstance. Accordingly, the total number of circumstances may exceed the total number of suicides.

Table 42: Current Mental Health Problem at the Time of Youth and Young Adult Suicide (Ages 10-24) in North Carolina (2004-2008)

Current Mental Health Problem **	Male		Female		TOTAL	
	Number	Percent	Number	Percent	Number	Percent
Depression/ Dysthymia	100	64.5	37	75.5	137	67.2
Bipolar Disorder	20	12.9	8	16.3	28	13.7
Schizophrenia	15	9.7	1	2.0	16	7.8
Attention Deficit Disorder (ADD) or Hyper-Reactivity Disorder	6	3.9	0	0.0	6	2.9
Anxiety Disorder	3	1.9	1	2.0	4	2.0
Eating Disorder	0	0.0	1	2.0	1	0.5
Other	6	3.9	0	0.0	6	2.9
Unknown	13	8.4	2	4.1	15	7.4

** For 155 males, 49 females and 204 total youth and young adult (ages 10-24) suicide victims with a current mental health problem

NOTE: Victims may have more than one current mental health problem

Suicidal Behavior from the North Carolina Youth Risk Behavior Survey

Table 43: Suicidal Behavior from the Youth Risk Behavior Survey* for North Carolina High School Students (2005, 2007 and 2009)

	2005 Weighted Percent	2007 Weighted Percent	2009 Weighted Percent
Students who felt so sad or hopeless almost every day for two weeks or more in a row that they stopped doing some usual activities during the past 12 months	26.5	26.9	27.4
Students who seriously considered attempting suicide during the past 12 months	15.6	12.5	13.2
Students who made a plan about how they would attempt suicide during the past 12 months	13.1	9.5	10.1
Students who actually attempted suicide one or more times during the past 12 months	13.1	13.3	9.9

* Data Source: Healthy Schools, North Carolina Department of Public Instruction and North Carolina Division of Public Health

OLDER ADULT (AGES 65 OR OLDER) SUICIDE

Older adult men aged 65 or older are at risk for suicidal behavior, as evidenced by the highest suicide rate by age and gender in North Carolina between 2004 and 2008. This section provides statistics for older adults (ages 65 years or older) on completed suicides and suicide attempts based on hospitalizations and emergency department visits for self-inflicted injuries in North Carolina.

KEY FINDINGS:

Older Adult Suicide and Self-Inflicted Injuries over Time

Among older adults in North Carolina, a total of 875 (16.2 per 100,000) died from suicide and 932 (17.2 per 100,000) were hospitalized for self-inflicted injuries from 2004 to 2008 (Table 44). Furthermore, 508 older adults (15.3 per 100,000) visited an emergency department for self-inflicted injuries in North Carolina between 2006 and 2008. Accordingly, the rates of suicides and suicide attempts resulting in a self-inflicted injury hospitalization or emergency visit in older adults were similar and persistent over time (Figure 18).

Demographics of Older Adult Suicide and Self-Inflicted Injury Victims

Demographic characteristics for older adult suicide victims in North Carolina in 2004 to 2008 are shown by year in Table 45 and for the aggregate five-year period in Table 46. Most older adult suicide victims were male (83.3%), white (95.1%) and non-Hispanic (99.8%). Older adult males were 7.1 times more likely to die from suicide than females (32.8 vs. 4.6 per 100,000, respectively). The suicide rate among adults ages 65 or older was highest in Asians and Pacific Islanders (20.1 per 100,000), followed by whites (18.6 per 100,000), and American Indians (13.7 per 100,000). However, the older adult suicide rates for Asians and Pacific Islanders and American Indians should be interpreted with caution because of the small number of cases in these demographic groups. The suicide rate was comparable across older adult age groups, ranging from 15.3 per 100,000 for ages 65 to 74 years to 17.4 per 100,000 for ages 75 to 84 years.

Older adult males and females had similar rates of self-inflicted injury hospitalizations (Table 47 and Table 48) and emergency department visits (Table 49 and Table 50) in North Carolina. The self-inflicted injury rate per 100,000 for hospitalizations was 18.2 for males and 16.6 for females and for emergency department visits was 16.1 for males and 14.8 for females. The youngest age group of 65 to 74 years as compared to the oldest age group of 85 years or older was twice as likely to experience a self-inflicted injury hospitalization (20.9 vs. 10.2 per 100,000) and 1.8 times more likely to have a self-inflicted injury emergency department visit (19.3 vs. 10.8 per 100,000).

Compared to women, men had considerably higher suicide rates across all older adult age groups (Table 51) and similar or slightly higher self-inflicted injury hospitalization rates (Table 52) and emergency department visit rates (Table 53). The suicide rate per 100,000 increased with older age for men as follows: 27.2 in ages 65 to 74 years, 38.9 in ages 75 to 84 years and 46.7 in ages 85 or older. On the other hand, women ages 65 to 74 years had the highest suicide rate (5.5 per 100,000) among older adult women. Self-inflicted injury hospitalization rates were also highest in the 85 or older age group in males (19.6 per 100,000) and in the 65 to 74 age group in females (22.4 per 100,000). For self-inflicted injury emergency department visits, the rate per 100,000 decreased with older age from a peak at ages 65 to 74 years of 18.0 for males and 20.4 for females.

Among older adults, whites accounted for 95.5 percent of male suicide victims with a suicide rate of 37.2 per 100,000 and 93.2 percent of female suicide victims with a suicide rate of 5.2 per 100,000 (Table 54). Since less than 1.0 percent of male older adult suicide victims were Asian or Pacific Islander, the suicide rate of 26.3 per 100,000 should be interpreted with caution.

Suicide Method for Older Adults

The leading methods of suicide for ages 65 or older in North Carolina were firearm (79.1%), poisoning (9.3%), and hanging, strangulation or suffocation (6.5%) (Table 55). Most (86.4%) suicides in older adult males involved a firearm; whereas, a firearm (42.5%) and poisoning (34.3%) were both common methods for older adult females.

Self-Inflicted Injury Type for Older Adults

Poisoning injuries (78.3%), cut or pierce injuries (9.0%) and firearm injuries (6.0) were the most common self-inflicted injury-related hospitalizations in ages 65 or older in North Carolina (Table 56). Additionally, poisoning injuries (71.5%), cut or pierce injuries (10.4%) and firearm injuries (9.5%) were the leading self-inflicted injuries treated in emergency departments for older adults (Table 57).

Suicide Circumstances for Older Adults

Circumstances surrounding older adult suicides in North Carolina in 2004 to 2008 were available in NC-VDRS for 91.6 percent of victims (Table 58). The most common suicide circumstance in 57.0 percent of older adult victims was a physical health problem. Mental health circumstances were also common in older adults with 56.2 percent having a depressed mood; 43.2 percent having a current mental health problem; and 42.4 percent having ever been treated for mental illness. At the time of suicide, 40.0 percent of older adult suicide victims were currently being treated for mental illness, and the most common current mental health problems were depression or dysthymia (89.1%), bipolar disorder (2.9%), and anxiety disorder (2.6%) (Table 59).

A crisis within two weeks was reported in 30.1 percent of older adult suicide victims. Other less common suicide circumstances in suicide victims ages 65 or older included: death of a friend or family (7.5%), intimate partner problem (7.2%), and alcohol problem (6.2%). Of suicide victims ages 65 or older, 27.0 percent left a suicide note, 25.5 percent disclosed intent to complete suicide, and 6.6 percent had a history of suicide attempts.

Older Adult Suicide and Self-Inflicted Injuries Over Time

Table 44: Older Adult (Ages 65 or Older) Suicides, Self-Inflicted Injury Hospitalizations and Self-Inflicted Injury Emergency Department Visits in North Carolina by Year

Year	Suicides			Hospitalizations			Emergency Department Visits		
	Number	Rate	95% CI	Number	Rate	95% CI	Number	Rate	95% CI
2004	163	15.8	13.4 - 18.2	143	13.9	11.6 - 16.1	NA*	NA*	NA*
2005	181	17.2	14.7 - 19.7	182	17.3	14.8 - 19.8	NA*	NA*	NA*
2006	173	16.1	13.7 - 18.5	207	19.2	16.6 - 21.9	150 ‡	13.9 ‡	11.7 - 16.2 ‡
2007	180	16.3	13.9 - 18.7	199	18.0	15.5 - 20.5	195	17.7	15.2 - 20.2
2008	178	15.6	13.3 - 17.9	201	17.6	15.2 - 20.1	163	14.3	12.1 - 16.5
TOTAL	875	16.2	15.1 - 17.3	932	17.2	16.1 - 18.4	508	15.3	14.0 - 16.6

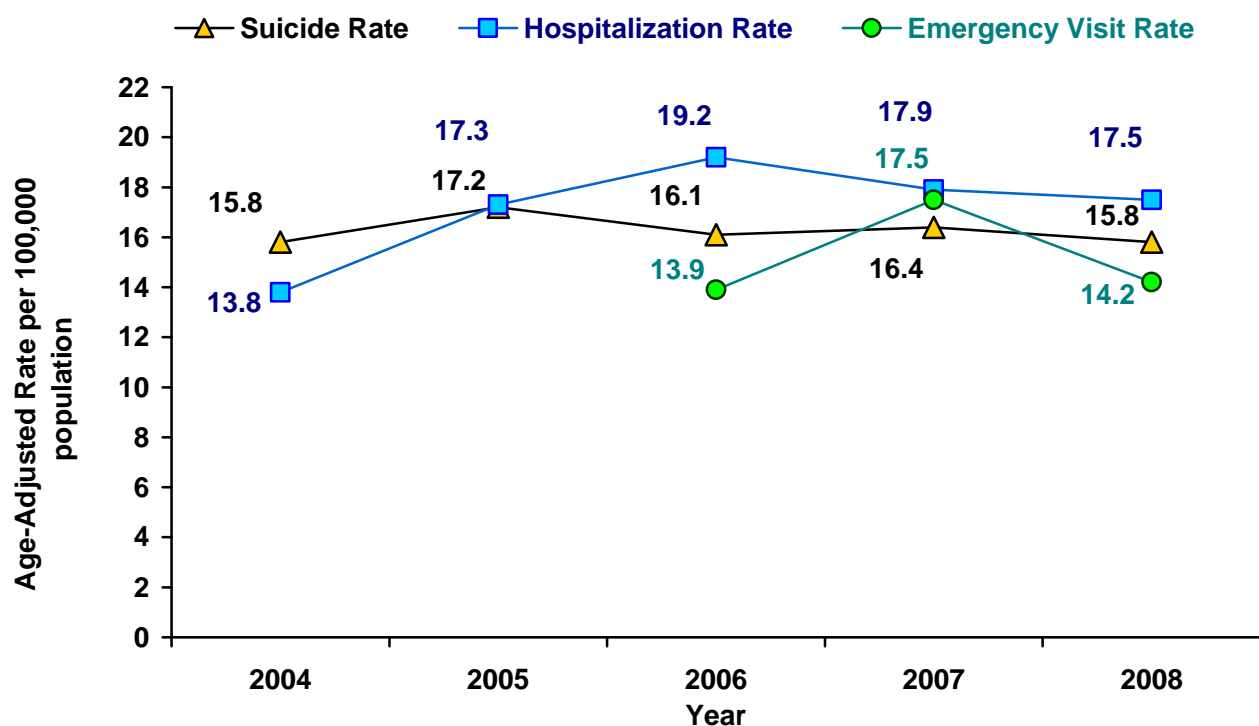
Crude rate per 100,000 N.C. population ages 65+

95% CI = 95 Percent Confidence Interval for Rate

* Emergency department visit data are not available for 2004-2005

‡ Only 79 percent of emergency departments reporting in 2006

Figure 18: Age-Adjusted Rate of Older Adult (Ages 65 or Older) Suicides, Self-Inflicted Injury Hospitalizations and Self-inflicted Injury Emergency Department Visits in North Carolina Over Time



Demographics of Older Adult Suicide and Self-Inflicted Injury Victims

Table 45: Demographics of Older Adult (Ages 65 or Older) Suicide Victims in North Carolina by Year

	2004		2005		2006		2007		2008	
Gender	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Male	132	31.3	158	36.6	152	34.3	142	31.1	145	30.6
Female	31	5.1	23	3.7	21	3.3	38	5.9	33	5.0
Race										
American Indian	0	*	0	*	2	*	4	*	0	*
Asian/Pacific Islander	2	*	2	*	0	*	1	*	4	*
Black	7	4.3	7	4.2	5	2.9	3	*	6	3.3
White	154	18.0	172	19.8	166	18.7	172	18.9	168	17.9
Hispanic Ethnicity										
Hispanic	1	*	0	*	0	*	1	*	0	*
Non-Hispanic	162	15.8	181	17.4	173	16.3	179	16.4	178	15.9
Age Group (Years)										
65-74	79	14.3	94	16.8	91	15.8	97	16.4	82	13.3
75-84	62	17.3	65	17.9	57	15.5	64	17.3	71	19.0
85 +	22	17.9	22	17.1	25	18.5	19	13.4	25	16.9
TOTAL	163	15.8	181	17.2	173	16.1	180	16.3	178	15.6

Gender, race, Hispanic ethnicity or age-specific crude rate per 100,000 N.C. population ages 65+

* The number of deaths was zero or too small to support calculation of a rate.

Table 46: Demographics of Older Adult (Ages 65 or Older) Suicide Victims in North Carolina (2004-2008)

Gender	Number	Percent	Rate	95% CI
Male	729	83.3	32.8	30.4 - 35.1
Female	146	16.7	4.6	3.8 - 5.3
Race				
American Indian	6	0.7	13.7	2.7 - 24.6
Asian / Pacific Islander	9	1.0	20.1	7.0 - 33.3
Black	28	3.2	3.3	2.1 - 4.5
White	832	95.1	18.6	17.4 - 19.9
Hispanic				
Hispanic	2	0.2	*	*
Non-Hispanic	873	99.8	16.4	15.3 - 17.4
Age Group (Years)				
65-74	443	50.6	15.3	13.9 - 16.7
75-84	319	36.5	17.4	15.5 - 19.3
85 +	113	12.9	16.7	13.6 - 19.8
TOTAL	875	100	16.2	15.1 - 17.3

Gender, race, Hispanic ethnicity or age-specific crude rate per 100,000 N.C. population ages 65+

95% CI = 95 Percent Confidence Interval for Rate * The number of deaths was too small to support calculation of a rate.

Table 47: Demographics of Older Adult (Ages 65 or Older) Self-Inflicted Injury Hospitalizations in North Carolina by Year

	2004		2005		2006		2007		2008	
Gender	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Male	65	15.4	82	19.0	92	20.8	84	18.4	81	17.1
Female	78	12.8	100	16.1	115	18.2	115	17.8	120	18.0
Age Group (Years)										
65-74	95	17.2	103	18.4	132	23.0	142	24.0	133	21.5
75-84	41	11.4	58	15.9	59	16.1	47	12.7	53	14.2
85 +	7	5.7	21	16.3	16	11.8	10	7.0	15	10.1
TOTAL	143	13.9	182	17.3	207	19.2	199	18.0	201	17.6

Gender or age-specific crude rate per 100,000 N.C. population ages 65+

Table 48: Demographics of Older Adult (Ages 65 or Older) Self-Inflicted Injury Hospitalizations in North Carolina (2004-2008)

Gender	Number	Percent	Rate	95% CI
Male	404	45.5	18.2	16.4 - 19.9
Female	528	54.6	16.6	15.2 - 18.0
Age Group (Years)				
65-74	605	66.4	20.9	19.2 - 22.6
75-84	258	28.7	14.1	12.4 - 15.8
85 +	69	4.9	10.2	7.8 - 12.6
TOTAL	932	100	17.2	16.1 - 18.4

Gender or age-specific crude rate per 100,000 N.C. population ages 65+

95% CI = 95 Percent Confidence Interval for Rate

Table 49: Demographics of Older Adult (Ages 65 or Older) Self-Inflicted Injury Emergency Department Visits in North Carolina by Year

	2006 ‡		2007		2008	
Gender	Number	Rate	Number	Rate	Number	Rate
Male	70	15.8	86	18.8	65	13.7
Female	80	12.6	109	16.8	98	14.7
Age Group (Years)						
65-74	99	17.2	138	23.3	107	17.3
75-84	39	10.6	38	10.3	41	11.0
85 +	12	8.9	19	13.4	15	10.1
TOTAL	150	13.9	195	17.7	163	14.3

Gender or age-specific crude rate per 100,000 N.C. population ages 65+

‡ Only 79 percent of emergency departments reporting in 2006

Table 50: Demographics of Older Adult (Ages 65 or Older) Self-Inflicted Injury Emergency Department Visits in North Carolina (2006-2008)

Gender	Number	Percent	Rate	95% CI
Male	221	43.5	16.1	14 - 18.2
Female	287	56.5	14.8	13 - 16.5
Age Group (Years)				
65-74	344	67.7	19.3	17.2 - 21.3
75-84	118	23.2	10.6	8.7 - 12.6
85 +	46	9.1	10.8	7.7 - 13.9
TOTAL	508	100	15.3	14.0 - 16.6

Gender or age-specific crude rate per 100,000 N.C. population ages 65+

95% CI = 95 Percent Confidence Interval for Rate

Age and Gender

Table 51: Older Adult (Ages 65 or Older) Suicides in North Carolina by Age and Gender (2004-2008)

Age (Years)	Male			Female		
	Number	Percent	Rate	Number	Percent	Rate
65-74	356	48.8	27.2	87	59.6	5.5
75-84	280	38.4	38.9	39	26.7	3.5
85 +	93	12.8	46.7	20	13.7	4.2
TOTAL	729	100	32.8	146	100	4.6

Gender and age-specific crude rate per 100,000 N.C. population ages 65+

Table 52: Older Adult (Ages 65 or Older) Self-Inflicted Injury Hospitalizations in North Carolina by Age and Gender (2004-2008)

Age (Years)	Male			Female		
	Number	Percent	Rate	Number	Percent	Rate
65-74	250	61.9	19.1	355	67.2	22.4
75-84	115	28.5	16.0	143	27.1	12.9
85 +	39	9.7	19.6	30	5.7	6.3
TOTAL	404	100	18.2	528	100	16.6

Gender or age-specific crude rate per 100,000 N.C. population ages 65+

Table 53: Older Adult (Ages 65 or Older) Self-Inflicted Injury Emergency Department Visits in North Carolina by Age and Gender (2006-2008)

Age (Years)	Male			Female		
	Number	Percent	Rate	Number	Percent	Rate
65-74	145	65.6	18.0	199	69.3	20.4
75-84	58	26.2	13.2	60	20.9	8.9
85 +	18	8.1	14.1	28	9.8	9.4
TOTAL	221	100	16.1	287	100	14.8

Gender or age-specific crude rate per 100,000 N.C. population ages 65+

Race and Gender

Table 54: Older Adult (Ages 65 or Older) Suicides in North Carolina by Race and Gender (2004-2008)

Race	Male			Female		
	Number	Percent	Rate	Number	Percent	Rate
American Indian	4	0.6	*	2	1.4	*
Asian/Pacific Islander	5	0.7	26.3	4	2.7	*
Black	24	3.3	7.6	4	2.7	*
White	696	95.5	37.2	136	93.2	5.2
TOTAL	729	100	32.8	146	100	4.6

Gender or age-specific crude rate per 100,000 N.C. population ages 65+

* The number of deaths was too small to support calculation of a rate.

Suicide Method for Older Adults

Table 55: Method of Older Adult (Ages 65 or Older) Suicides in North Carolina by Gender, 2004-2008

Method	Male		Female		TOTAL	
	Number	Percent	Number	Percent	Number	Percent
Firearm	630	86.4	62	42.5	692	79.1
Poisoning	31	4.3	50	34.3	81	9.3
Hanging, Strangulation, Suffocation	39	5.4	18	12.3	57	6.5
Sharp Instrument	12	1.7	5	3.4	17	1.9
Drowning	7	1.0	3	2.1	10	1.1
Fall	4	0.6	3	2.1	7	0.8
Fire / Burn	3	0.4	4	2.7	7	0.8
Motor Vehicle	2	0.3	0	0.0	2	0.2
Other/ Unknown/ Missing	1	0.1	1	0.7	2	0.2
TOTAL	729	100	146	100	875	100

Self-Inflicted Injury Type for Older Adults

Table 56: Type of Older Adult (Ages 65 or Older) Self-Inflicted Injury Hospitalizations in North Carolina by Gender (2004-2008)						
	Male		Female		TOTAL	
Self-Inflicted Injury Type	Number	Percent	Number	Percent	Number	Percent
Poisoning	273	67.6	457	86.6	730	78.3
Cut / Pierce	46	11.4	38	7.2	84	9.0
Firearm	47	11.6	9	1.7	56	6.0
Other Specified / Not Classified	18	4.5	15	2.8	33	3.5
Unspecified	5	1.2	5	1.0	10	1.1
Other Specified / Classified	8	2.0	0	0.0	8	0.9
Drowning	1	0.3	2	0.4	3	0.3
Fall	2	0.5	0	0.0	2	0.2
Fire/Burn	1	0.3	1	0.2	2	0.2
Suffocation	2	0.5	0	0.0	2	0.2
Motor Vehicle Transport	1	0.3	0	0.0	1	0.1
Natural / Environmental	0	0.0	1	0.2	1	0.1
TOTAL	404	100	528	100	932	100

Table 57: Type of Older Adult (Ages 65 or Older) Self-Inflicted Injury Emergency Department Visits by Gender in North Carolina (2006-2008)						
	Male		Female		Total	
Self-Inflicted Injury Type	Number	Percent	Number	Percent	Number	Percent
Poisoning	133	60.2	230	80.1	363	71.5
Cut / Pierce	22	10.0	31	10.8	53	10.4
Firearm	44	19.9	4	1.4	48	9.5
Other Specified / Not Classified	11	5.0	13	4.5	24	4.7
Unspecified	1	0.5	6	2.1	7	1.4
Other Specified / Classified	3	1.4	1	0.4	4	0.8
Suffocation	3	1.4	0	0.0	3	0.6
Fall	2	0.9	0	0.0	2	0.4
Fire/Burn	1	0.5	1	0.4	2	0.4
Drowning	0	0.0	1	0.4	1	0.2
Motor Vehicle Transport	1	0.5	0	0.0	1	0.2
TOTAL	221	100	287	100	508	100

Suicide Circumstances for Older Adults

Table 58: Circumstances of Older Adult (Ages 65 or Older) Suicide Victims in North Carolina (2004-2008)

Circumstance	Male		Female		TOTAL	
	Number	Percent	Number	Percent	Number	Percent
Mental Health						
Current depressed mood	392	58.4	60	44.8	452	56.2
Current mental health problem	272	40.5	76	56.7	348	43.2
Current treatment for mental illness	249	37.1	73	54.5	322	40.0
Ever treated for mental illness	267	39.8	74	55.2	341	42.4
Substance Abuse						
Alcohol problem	45	6.7	5	3.7	50	6.2
Other substance problem	4	0.6	4	3.0	8	1.0
Interpersonal						
Intimate partner problem	55	8.2	3	2.2	58	7.2
Other relationship problem	19	2.8	11	8.2	30	3.7
Recent suicide of friend/family (past 5 years)	3	0.5	0	0.0	3	0.4
Other death of friend/family	47	7.0	13	9.7	60	7.5
Perpetrator of interpersonal violence in past	28	4.2	0	0.0	28	3.5
Victim of interpersonal violence in past month	1	0.2	0	0.0	1	0.1
Life Stressor						
Crisis within two weeks	219	32.6	23	17.2	242	30.1
Physical health problem	401	59.8	58	43.3	459	57.0
Job problem	12	1.8	1	0.8	13	1.6
School problem	0	0.0	0	0.0	0	0.0
Financial problem	31	4.6	2	1.5	33	4.1
Recent criminal or legal problem	6	0.9	0	0.0	6	0.8
Other legal problems	6	0.9	0	0.0	6	0.8
Suicide Event						
Left a suicide note	165	24.6	52	38.8	217	27.0
Disclosed intent to complete suicide	173	25.8	32	23.9	205	25.5
History of suicide attempts	38	5.7	15	11.2	53	6.6

** Circumstances were available for 92.0 percent (671/729) of males, 91.8 percent (134/146) of females and 91.6 percent (805/875) of all older adult (ages 65 or older) suicide victims

NOTE: Each victim may have more than one circumstance. Accordingly, the total number of circumstances may exceed the total number of suicides.

Table 59: Current Mental Health Problem at the Time of Older Adult (Ages 65 or Older) Suicide in North Carolina (2004-2008)

Current Mental Health Problem **	Male		Female		Total	
	Number	Percent	Number	Percent	Number	Percent
Depression/ Dysthymia	241	88.6	69	90.8	310	89.1
Bipolar Disorder	6	2.2	4	5.3	10	2.9
Anxiety Disorder	6	2.2	3	3.9	9	2.6
Schizophrenia	2	0.7	0	0.0	2	0.6
Post-Traumatic Stress Disorder	1	0.4	0	0.0	1	0.3
Attention Deficit Disorder (ADD) or Hyper-Reactivity Disorder	1	0.4	0	0.0	1	0.3
Eating Disorder	0	0.0	0	0.0	0	0.0
Obsessive-Compulsive Disorder	0	0.0	0	0.0	0	0.0
Other	15	5.5	1	1.3	16	4.6
Unknown	4	1.5	1	1.3	5	1.4

** For 272 males, 76 females and 348 total older adult (ages 65+) suicide victims with a current mental health problem

NOTE: Victims may have more than one current mental health problem

VETERAN SUICIDE

Military veterans are prone to suicidal behavior, as demonstrated by a veteran suicide rate twice the overall suicide rate in North Carolina during 2004 to 2008. This section provides suicide statistics for veterans, defined in NC-VDRS as anyone who has ever served in the military, ages 18 or older in North Carolina, unless otherwise specified. Note that for the < 20 year age group, there was a relatively small number (1,115) of North Carolina veterans and only nine veteran suicides in 2004 to 2008. In addition, data stratified by veteran status were not available for self-inflicted injury hospitalizations and emergency department visits.

KEY FINDINGS:

Veteran Suicide Over Time

In 2004 to 2008, 1,148 North Carolina veterans (29.6 per 100,000) died from suicide (Table 60). The age-adjusted veteran suicide rate for ages 20 or older was slightly higher than the crude rate each year between 2004 and 2007, and was skewed higher in 2008 because of the small number of N.C. veterans relative to the number of suicides in the 20 to 24 age group (Figure 19).

Demographics of Veteran Suicide Victims

Demographic characteristics for veteran suicide victims in North Carolina during 2004 to 2008 are shown by year in Table 61 and for the aggregate five-year period in Table 62. Most veteran suicide victims in North Carolina in 2004 to 2008 were male (97.2%), white (91.8%), non-Hispanic (99.1%) and between ages 35 and 84 (81.0%). Men were three times more likely to die from suicide than females (31.4 vs. 10.0 per 100,000, respectively). The veteran suicide rate per 100,000 by race from highest to lowest was for whites (35.2), Asians and Pacific Islanders (32.6), American Indians (18.8), and blacks (11.2), although the number of veteran suicides was less than 10 for Asians and Pacific Islanders and American Indians in 2004 to 2008. Non-Hispanic veterans had a higher suicide rate than Hispanic veterans (29.9 vs. 15.8 per 100,000, respectively). Veterans aged 20 to 24 years had the highest suicide rate (115.7 per 100,000); however, this rate should be interpreted with caution because of the small number of N.C. veterans in this age group. The next highest suicide rates by age group among veterans were for ages 85 or older (39.7 per 100,000) and ages 75 to 84 (38.7 per 100,000).

Males had a higher suicide rate than females across all age groups with similar rates for males as for all veterans since the vast majority of veteran suicide victims were male (Table 63). For female veterans, ages 35 to 44 had the highest percentage (40.6) and rate (15.3 per 100,000) of suicides among women. Whites accounted for 92.0 percent of male and 84.4 percent of female veteran suicide victims, while blacks were 7.0 percent of male and 12.5 percent of female veteran suicide victims (Table 64). The veteran suicide rate by race and gender was highest for white men (36.7 per 100,000) and white women (13.5 per 100,000).

Suicide Method for Veterans

Among North Carolina veteran suicide victims from 2004 to 2008, the most common suicide methods were firearm (74.0%), poisoning (11.9%), and hanging, strangulation or suffocation (11.0%) (Table 65). Firearm was the leading suicide method for veteran males (74.6%) and veteran females (56.3%). Poisoning was more common in women (28.1%) than men (11.4%) among veteran suicide victims.

Suicide Circumstances for Veterans

Circumstances surrounding veteran suicides in North Carolina in 2004 to 2008 were available in NC-VDRS for 92.8 percent of victims (Table 66). Mental health circumstances were the most common in veteran suicides with 51.7 percent having a depressed mood; 44.0 percent having a current mental health problem; and 42.5 percent having ever been treated for mental illness. At the time of suicide, 39.3 percent of veteran suicide victims were currently receiving treatment for mental illness. The most common current mental health problems for veterans were depression or dysthymia (83.2%), bipolar disorder (7.2%), anxiety disorder (1.9%), schizophrenia (1.3%), and post-traumatic stress disorder (1.3%) (Table 67).

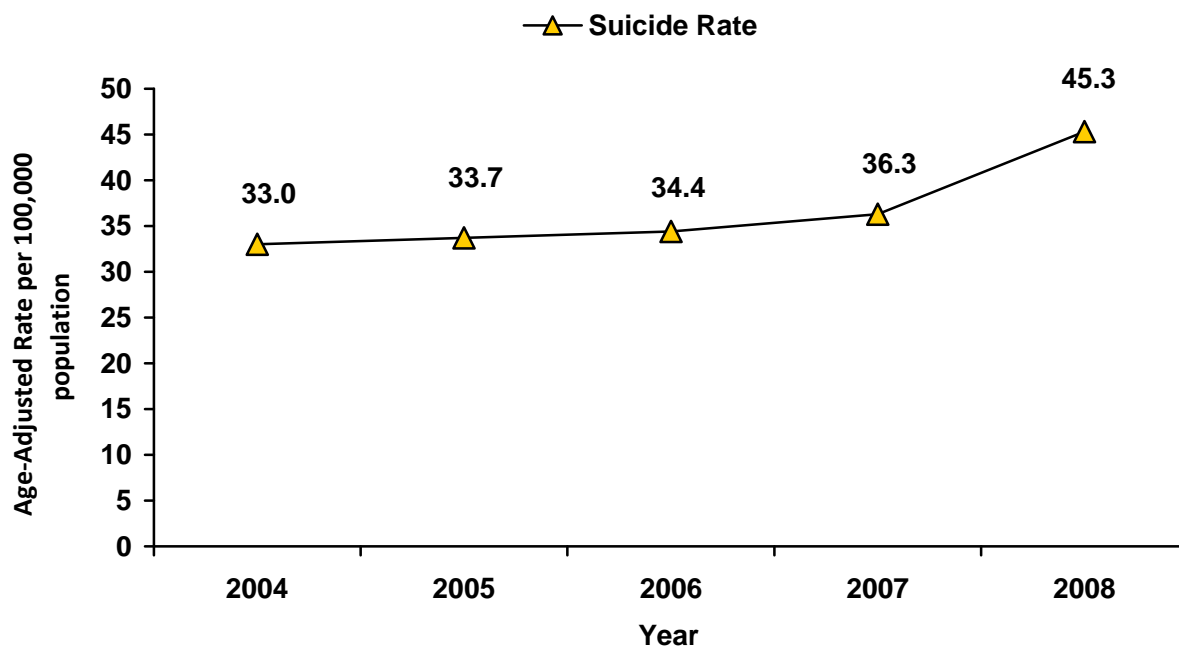
A crisis within two weeks was reported for 35.0 percent of veteran suicide victims. Other common suicide circumstances for veterans were problems with physical health (34.6%), an intimate partner (22.0%) and alcohol (12.1%). Among veteran victims of suicide, 29.2 percent left a suicide note, 24.5 percent disclosed intent to complete suicide, and 10.0 percent had a history of suicide attempts.

Veteran Suicide Over Time

Table 60: Veteran Suicides in North Carolina by Year			
Year	Number	Rate	95% CI
2004	214	27.5	23.8 - 31.2
2005	239	30.8	26.9 - 34.7
2006	224	28.9	25.2 - 32.7
2007	225	29.1	25.3 - 32.9
2008	246	31.9	27.9 - 35.8
TOTAL	1,148	29.6	27.9 - 31.4

Rate is crude rate per 100,000 N.C. veteran population 95% CI = 95 Percent Confidence Interval for Rate

Figure 19: Age-Adjusted Rate of Veteran Suicides in North Carolina Over Time for Veterans Ages 20 or Older



Demographics of Veteran Suicide Victims

Table 61: Demographics of Veteran Suicide Victims in North Carolina by Year

	2004		2005		2006		2007		2008	
Gender	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Male	209	29.2	232	32.5	221	31.1	218	30.8	236	33.5
Female	5	8.3	7	11.2	3	*	7	10.7	10	14.9
Race										
American Indian	2	*	1	*	0	*	1	*	3	*
Asian/Pacific Islander	1	*	0	*	1	*	1	*	2	*
Black	16	11.2	21	14.5	14	9.6	11	7.4	20	13.4
White	195	32.2	217	36.0	209	34.9	212	35.6	221	37.3
Hispanic Ethnicity										
Hispanic	2	*	0	*	1	*	2	*	5	38.4 §
Non-Hispanic	212	27.7	239	31.3	223	29.3	223	29.3	241	31.7
Age Group (Years)										
< 20	3	*	1	*	2	*	1	*	2	*
20-24	9	90.9 §	8	77.2 §	11	106.8 §	10	97.8 §	21	205.5 §
25-34	22	35.4	19	31.5	16	26.8	20	33.3	19	31.4
35-44	25	22.5	29	26.2	25	22.8	39	36.7	29	28.3
45-54	36	25.5	36	25.8	42	30.1	33	23.5	35	24.6
55-64	41	22.2	40	21.1	42	22.0	38	19.9	51	26.9
65-74	36	25.9	44	32.9	37	28.5	38	29.3	28	21.7
75-84	36	33.3	50	46.5	37	34.8	34	32.1	49	46.7
85 +	6	28.9	12	49.6	12	43.5	12	39.5	12	36.3
TOTAL	214	27.5	239	30.8	224	28.9	225	29.1	246	31.9

Gender, race, Hispanic ethnicity or age-specific crude rate per 100,000 N.C. veteran population

* The number of deaths was zero or too small to support calculation of a rate.

§ Rate should be interpreted with caution because of the small sample size of the subgroup population.

NOTE: N.C. veteran population data stratified by race was only available for non-Hispanic ethnicity. The rates by race may be slightly overestimated because suicides included both Hispanic (≤ 5 cases per year) and non-Hispanic ethnicity.

Table 62: Demographics of Veteran Suicide Victims in North Carolina (2004-2008)

Gender	Number	Percent	Rate	95% CI
Male	1,116	97.2	31.4	29.6 - 33.2
Female	32	2.8	10.0	6.6 - 13.5
Race				
American Indian	7	0.6	18.8	4.9 – 32.7
Asian / Pacific Islander	5	0.4	32.6	4.0 – 61.1
Black	82	7.1	11.2	8.8 – 13.6
White	1,054	91.8	35.2	33.1 – 37.3
Hispanic				
Hispanic	10	0.9	15.8	6.0 – 25.6
Non-Hispanic	1,138	99.1	29.9	28.1 – 31.6
Age Group (Years)				
< 20	9	0.8	*	*
20-24	59	5.1	115.7 §	86.2 - 145.2
25-34	96	8.4	31.7	25.4 - 38.1
35-44	147	12.8	27.2	22.8 - 31.6
45-54	182	15.9	25.9	22.1 - 29.7
55-64	212	18.5	22.4	19.4 - 25.5
65-74	183	15.9	27.7	23.7 - 31.7
75-84	206	17.9	38.7	33.4 - 43.9
85 +	54	4.7	39.7	29.1 - 50.3
TOTAL	1,148	100	29.6	27.9 - 31.4

Gender, race, Hispanic ethnicity or age-specific crude rate per 100,000 N.C. veteran population

95% CI = 95 Percent Confidence Interval for Rate * The number of deaths was too small to support calculation of a rate.

§ Rate should be interpreted with caution because of the small sample size of the subgroup population.

NOTE: N.C. veteran population data stratified by race was only available for non-Hispanic ethnicity. The rates by race may be slightly overestimated because suicides included both Hispanic (10 cases) and non-Hispanic ethnicity.

Age and Gender

Table 63: Veteran Suicides in North Carolina by Age and Gender (2004-2008)

Age (Years)	Male			Female		
	Number	Percent	Rate	Number	Percent	Rate
< 20	8	0.7	*	1	3.1	*
20-24	56	5.0	137.2 §	3	9.4	*
25-34	90	8.1	36.8	6	18.8	10.4
35-44	134	12.0	29.5	13	40.6	15.3
45-54	175	15.7	28.5	7	21.9	7.9
55-64	211	18.9	23.2	1	3.1	*
65-74	183	16.4	28.3	0	0.0	*
75-84	206	18.5	39.9	0	0.0	*
85 +	53	4.8	41.9	1	3.1	*
TOTAL	1,116	100	31.4	32	100	10.0

Gender and age-specific crude rate per 100,000 N.C. veteran population in specified category

* The number of deaths was zero or too small to support calculation of a rate.

§ Rate should be interpreted with caution because of the small sample size of the subgroup population.

Race and Gender

Table 64: Veteran Suicides in North Carolina by Race and Gender (2004-2008)						
Race	Male			Female		
	Number	Percent	Rate	Number	Percent	Rate
American Indian	7	0.6	21.3	0	0.0	*
Asian / Pacific Islander	4	0.4	*	1	3.1	*
Black	78	7.0	12.3	4	12.5	*
White	1,027	92.0	36.7	27	84.4	13.5
TOTAL	1,116	100	31.4	32	100	10.0

Gender and race-specific crude rate per 100,000 N.C. veteran population

* The number of deaths was zero or too small to support calculation of a rate.

NOTE: N.C. veteran population data stratified by race was only available for non-Hispanic ethnicity. The rates by race may be slightly overestimated because suicides included both Hispanic (10 cases) and non-Hispanic ethnicity.

Suicide Method for Veterans

Table 65: Method of Veteran Suicides in North Carolina by Gender (2004-2008)						
Method	Male		Female		TOTAL	
	Number	Percent	Number	Percent	Number	Percent
Firearm	832	74.6	18	56.3	850	74.0
Poisoning	127	11.4	9	28.1	136	11.9
Hanging, Strangulation, Suffocation	124	11.1	2	6.3	126	11.0
Sharp Instrument	19	1.7	0	0.0	19	1.7
Fall	4	0.4	1	3.1	5	0.4
Drowning	4	0.4	1	3.1	5	0.4
Other Transport Vehicle	4	0.4	0	0.0	4	0.4
Motor Vehicle	1	0.1	1	3.1	2	0.2
Fire / Burn	1	0.1	0	0.0	1	0.1
TOTAL	1,116	100	32	100	1,148	100

Suicide Circumstances for Veterans

Table 66: Circumstances of Veteran Suicide Victims in North Carolina (2004-2008)

Circumstance**	Male		Female		TOTAL	
	Number	Percent	Number	Percent	Number	Percent
Mental Health						
Current depressed mood	538	51.9	13	46.4	551	51.7
Current mental health problem	449	43.3	20	71.4	469	44.0
Current treatment for mental illness	400	38.6	18	64.3	418	39.3
Ever treated for mental illness	433	41.8	20	71.4	453	42.5
Substance Abuse						
Alcohol problem	126	12.2	3	10.7	129	12.1
Other substance problem	58	5.6	5	17.9	63	5.9
Interpersonal						
Intimate partner problem	229	22.1	5	17.9	234	22.0
Other relationship problem	51	4.9	2	7.1	53	5.0
Recent suicide of friend/family (past 5 years)	10	1.0	1	3.6	11	1.0
Other death of friend/family	53	5.1	0	0.0	53	5.0
Perpetrator of interpersonal violence in past	69	6.7	0	0.0	69	6.5
Victim of interpersonal violence in past month	2	0.2	1	3.6	3	0.3
Life Stressor						
Crisis within two weeks	364	35.1	9	32.1	373	35.0
Physical health problem	364	35.1	4	14.3	368	34.6
Job problem	75	7.2	4	14.3	79	7.4
School problem	0	0.0	0	0.0	0	0.0
Financial problem	64	6.2	0	0.0	64	6.0
Recent criminal or legal problem	68	6.6	1	3.6	69	6.5
Other legal problems	18	1.7	1	3.6	19	1.8
Suicide Event						
Left a suicide note	302	29.1	9	32.1	311	29.2
Disclosed intent to complete suicide	255	24.6	6	21.4	261	24.5
History of suicide attempts	102	9.8	4	14.3	106	10.0

** Circumstances were available for 92.9 percent (1,037/1,116) of males, 87.5 percent (28/32) of females and 92.8 percent (1,065/1,148) of all suicide victims

NOTE: Each victim may have more than one circumstance. Accordingly, the total number of circumstances may exceed the total number of suicides.

Table 67: Current Mental Health Problem at the Time of Veteran Suicide in North Carolina (2004-2008)

Current Mental Health Problem**	Male		Female		TOTAL	
	Number	Percent	Number	Percent	Number	Percent
Depression/ Dysthymia	375	83.5	15	75.0	390	83.2
Bipolar Disorder	31	6.9	3	15.0	34	7.2
Anxiety Disorder	9	2.0	0	0.0	9	1.9
Schizophrenia	6	1.3	0	0.0	6	1.3
Post-Traumatic Stress Disorder	6	1.3	0	0.0	6	1.3
Attention Deficit Disorder (ADD) or Hyper-Reactivity Disorder	0	0.0	0	0.0	0	0.0
Eating Disorder	0	0.0	0	0.0	0	0.0
Obsessive-Compulsive Disorder	0	0.0	0	0.0	0	0.0
Other	12	2.7	0	0.0	12	2.6
Unknown	16	3.6	2	10.0	18	3.8

** For 449 males, 20 females and 469 total veteran suicide victims with a current mental health problem

NOTE: Victims may have more than one current mental health problem

SUICIDE PREVENTION RECOMMENDATIONS

1. Promote awareness that suicide is a public health problem that is preventable.

Suicide is a major public health problem in North Carolina. Increasing awareness about suicide and the fact that it is preventable is the first step in mobilizing support for prevention initiatives. Increasing awareness of suicide may also influence beliefs and behaviors including decreasing the stigma associated with suicide and life-threatening behavior.

2. Develop and implement community-based suicide prevention programs.

Suicide risk factors cut across multiple disciplines – psychological, biological and social, suggesting that successful prevention efforts must reflect collaborative efforts across a broad spectrum of agencies, institutions, schools and community-based organizations. Collaborative support for suicide prevention may lead to additional funding and involvement of organizations that might not otherwise be interested in suicide prevention. Sustainable resources at the state, regional and local levels must be combined to form the comprehensive network required to prevent suicide.

3. Promote efforts to reduce access to lethal means and methods of self-harm.

Evidence indicates that limiting access to lethal means of self-harm may be an effective strategy to prevent self-harm in certain individuals. This prevention approach is based on emerging evidence that a small, but significant number of suicides are impulsive, especially in suicides among youth. Education on restriction of access to lethal means is seen as one of the most economical strategies for prevention of youth suicide. Education can be provided by many professionals, including law enforcement and healthcare providers, and should focus on parents and other adults who can control access to firearms, drugs, and other lethal means.

4. Implement training for recognition of at-risk behavior and delivery of effective treatment.

Despite the increased recognition that suicide is a public health problem, studies indicate that many health professionals are not adequately trained to provide proper assessment, treatment or referrals. Key gatekeepers, adults that are regularly in contact with people at risk for suicide, need to be trained in order to be able to recognize factors that may indicate thoughts of suicide. Gatekeepers may include teachers and other school personnel, clergy, police officers, primary healthcare providers, mental healthcare providers, correctional personnel and emergency healthcare professionals. Identifying individuals at risk and engaging them in early and aggressive treatments is effective in reducing the personal and situational factors associated with suicidal behaviors. Another way to prevent suicide is to promote and support the presence of protective factors such as skills in problem solving, conflict resolution and non-violent handling of disputes.

5. Improve community linkages and individual's access to mental health and substance abuse services.

Suicidal behavior is strongly associated with mental illness and/or substance abuse in all age groups. While both of these conditions can be successfully treated, many report that embarrassment, fear and stigma are the main reasons they do not get help for their problems. The stigma of mental illness and substance abuse has resulted in separate health systems for physical and mental healthcare. Consequently, prevention and treatment services for mental illness and substance abuse are much less available than services for physical illnesses. Services to prevent suicide must be available when and where people need them.

6. Improve and expand surveillance systems.

Establishing a system of ongoing surveillance of suicide and suicide attempts will aid in understanding risk factors and circumstances surrounding suicide. This, in turn, will enable the development of effective prevention and intervention strategies. Existing and developing data sources can be expanded to monitor, assess, analyze and report suicides and suicide attempts in a more effective and timely fashion. It is recommended that:

- The surveillance of suicide and associated risk factors be included in the North Carolina Violent Death Reporting System and annual reports.
- Estimates of suicide attempts be provided using data from the North Carolina Hospital Emergency Surveillance System (NCHESS).
- A reporting system be created that identifies all individuals who receive emergency department treatment/evaluation for self-inflicted injuries.
- Suicide surveillance data be analyzed, interpreted and distributed to inform researchers and program and policy development makers.

GLOSSARY

Age-Adjusted Rate: calculated based on the number of suicides, hospitalizations or emergency visits during the specified time period per 100,000 N.C. residents and standardized to the 2000 U.S. population with adjustment for the population distribution by age. Refer to Appendix B for method.

Crude Rate: calculated based on the number of suicides, hospitalizations or emergency visits during the specified time period per 100,000 N.C. residents. Refer to Appendix B for method.

Demographic-Specific Rate: calculated based on the number of suicides, hospitalizations or emergency visits in the demographic category (e.g., age, gender, race, Hispanic ethnicity and/or N.C. county) during the specified time per 100,000 N.C. residents in the demographic category. Refer to Appendix B for method.

North Carolina Disease Event Tracking and Epidemiologic Collection Tool (NC DETECT): a state system that receives data on at least a daily basis from hospital emergency departments statewide to provide early event detection and timely public health surveillance to public health officials and hospital users.

North Carolina Violent Death Reporting System (NC-VDRS): a statewide surveillance system that collects detailed information on violent deaths including suicides that occur in North Carolina.

North Carolina Youth Risk Behavior Survey (YRBS): a statewide survey of North Carolina middle school and high school students that helps assess behaviors in youth that impact their health now and in the future.

Older Adults: subgroup ages 65 years or older.

Poison: any substance that is harmful to the body when ingested (eaten), inhaled, injected, or absorbed through the skin. Any substance can be poisonous if too much is taken.

Self-Inflicted Injury Emergency Department Visit: a visit to an emergency department for injury categorized as self-inflicted in intent. All emergency department visits analyzed in this report were based on North Carolina hospital emergency department visits for self-inflicted injuries of North Carolina residents.

Self-Inflicted Injury Hospitalization: a hospitalization for injury categorized as self-inflicted in intent. Hospitalizations represent the number of hospital discharges (when a patient leaves a hospital following admission) with multiple discharges per patient possible. All hospitalizations analyzed in this report were based on North Carolina hospital discharges for self-inflicted injuries of North Carolina residents.

Suicide: a death resulting from the intentional use of force against oneself. Suicides were classified only for persons ages 10 or older. All suicide victims analyzed in this report were classified as N.C. residents at the time of death and the death occurred in North Carolina.

Veterans: subgroup classified in NC-VDRS as anyone who has ever served in the military.

Web-based Injury Statistics Query and Reporting System (WISQARS): a query and reporting system of national and state injury statistics available on the world wide web and provided by the Centers for Disease Control and Prevention, National Center for Injury Prevention and Control.

Years of Potential Life Lost (YPLL): a measure of the years of potential life lost because of premature death before the age of 65 years.

Youth and Young Adults: subgroup ages 10 to 24 years.

APPENDICES

Appendix A: Data Sources

Comparison of U.S. and North Carolina Suicide Data

The Web-based Injury Statistics Query and Reporting System (WISQARS) from the Centers for Disease Control and Prevention (CDC), National Center for Injury Prevention and Control provided the comparative U.S. and North Carolina suicide rates for the years 1999 to 2007 and the number and rate of years of potential life lost from suicide and other common causes of death for the years 2004 to 2007. Age-adjusted rates based on the 2000 U.S. Standard Population were reported unless otherwise noted. WISQARS reports were retrieved October 16, 2010 from: <http://www.cdc.gov/injury/wisqars/fatal.html>.

North Carolina Suicide Data 2004-2008

The North Carolina Violent Death Reporting System (NC-VDRS) provided suicide data for the years 2004 to 2008 for this report. NC-VDRS is a CDC-funded statewide surveillance system that collects detailed information on violent deaths including suicides that occur in North Carolina. NC-VDRS is a relational database that compiles information on the victims and circumstances surrounding each death. The collection of this information has created a better understanding of the circumstances surrounding violent deaths in North Carolina. The goal of the system is to aid researchers, legislators and community interest groups in the development of public health prevention strategies to reduce violent deaths. NC-VDRS began collecting data in January, 2004.

NC-VDRS is a multi-source system that gathers information from death certificates obtained from the N.C. State Center for Health Statistics; medical examiner reports obtained from the N.C. Office of the Chief Medical Examiner; and law enforcement reports obtained from more than 200 local law enforcement agencies across the state and the N.C. State Bureau of Investigation. Suicide is defined as a death resulting from the intentional use of force against oneself. A preponderance of evidence should indicate that the use of force was intentional. In most cases, the sources provide a unanimous categorization for the manner of death as suicide. In cases where a discrepancy occurs, the abstractor assigns a manner of death for which there is a preponderance of evidence from all sources. This classification must agree with at least one of the primary data sources listed above. Suicides must also correspond with the International Classification of Disease codes, version 10 (ICD-10), X60-X84 for deaths less than one year after self-inflicted injury or Y87.0 for deaths occurring 1 year or more after self-inflicted injury.

Suicides are classified only for persons ages 10 or older. NC-VDRS captures data on all suicides that occur in the state. This report is based on resident suicides, defined as those in which the victim was a North Carolina resident at the time of death, and the death occurred in North Carolina. All victims included in the analyses were classified as N.C. residents at the time of death.

North Carolina Hospital Discharge Data 2004 -2008

The North Carolina State Center for Health Statistics provided data for every North Carolina hospital discharge for self-inflicted injury of North Carolina residents in 2004 to 2008. A hospital discharge occurs after a patient leaves a hospital following admission. These data do not represent number of patients, but number of discharges (multiple discharges per patient are possible). Cause of injury was assigned with International Classification, 9th Revision; Clinical Modification (ICD-9-CM) External Causes of Injury codes (E Codes). Injuries were classified into manner and mechanism using CDC's standard injury matrix framework. Self-inflicted injuries were categorized as self-inflicted intent by any mechanism (e.g., firearm, poisoning) based on E-codes: E950-E959.

North Carolina Emergency Department Visit Data 2006-2008

The North Carolina Disease Event Tracking and Epidemiologic Collection Tool (NC DETECT) provided emergency department data for self-inflicted injury of North Carolina residents during 2006 to 2008. NC DETECT is a state system that receives data on at least a daily basis from hospital emergency departments (EDs) statewide to provide early event detection and timely public health surveillance to public health officials and hospital users. Of the 112 EDs open 24 hours/7 days per week in North Carolina, NC DETECT was receiving data daily from 79 percent in 2006, 93 percent in 2007, and 98 percent in 2008. Therefore, data for these years are not representative of all EDs in the state, although the majority of EDs were reporting. The ED data and hospital discharge data are not mutually exclusive. Cause of injury was assigned by hospital coders using International Classification, 9th Revision; Clinical Modification (ICD-9-CM) External Causes of Injury codes (E Codes). Injuries were then classified into manner and mechanism using the CDC's standard injury matrix framework. Self-inflicted injuries were categorized as self-inflicted intent by any mechanism (e.g., firearm, poisoning) based on E-codes: E950-E959.

North Carolina Youth Risk Behavior Survey 2005, 2007 and 2009

Under the Healthy Schools Initiative, the North Carolina Department of Public Instruction and the North Carolina Division of Public Health provided survey data for 2005, 2007 and 2009 from the Youth Risk Behavior Survey (YRBS) of North Carolina high school students. The North Carolina YRBS is a statewide survey that helps assess behaviors in youth that impact their health now and in the future. Reports on suicide ideation and attempts were retrieved September 26, 2010 from: <http://www.nchealthyschools.org/data/yrbs/>.

North Carolina Population Estimates 2004-2008

The North Carolina State Center for Health Statistics (SCHS) provided North Carolina population data for the years 2004 to 2008 to calculate rates. SCHS obtained the population data from the CDC National Center for Health Statistics bridged population file (2008 version).

Veteran Population Estimates 2004-2008

The U.S. Department of Veteran Affairs provided North Carolina veteran population data for the years 2004 to 2008 to calculate rates using the VetPop2007 estimate. The data file was retrieved October 16, 2010 from: <http://www1.va.gov/VETDATA/Demographics/Demographics.asp>.

Appendix B: Methods and Technical Notes

To determine the burden of suicide and self-inflicted injury in North Carolina, the following methodological approaches were undertaken:

- comparative analysis of suicide rates over time in North Carolina and the U.S.;
- analysis of suicides and self-inflicted injury hospitalizations and emergency department visits in North Carolina;
- analysis of years of potential life lost from suicide in North Carolina and the U.S. and as compared to other common causes of death;
- description of hospitalization charges for self-inflicted injuries in North Carolina; and
- summary of survey responses on suicide ideation and attempts by N.C. high school students.

Comparative Analysis of Suicide Rate

Suicide rates in North Carolina compared to the U.S. were calculated directly using the CDC's WISQARS. The system calculates age-adjusted suicide rates per 100,000 population from 1999 to 2007 with standardization to the total U.S. population data in 2000, provided by the U.S. Census Bureau and the National Center for Health Statistics.

Suicide and Self-Inflicted Injury Calculations

Suicides in North Carolina were analyzed using the NC-VDRS files for 2004 to 2008. Hospitalizations for self-inflicted injuries in North Carolina were analyzed based on the North Carolina Hospitalization files for 2004 to 2008. Emergency department visits for self-inflicted injuries in North Carolina were analyzed based on NC DETECT for 2006 to 2008. For hospitalizations and emergency visits, duplicate records or records with a primary diagnosis other than injury were excluded. Self-inflicted injuries were identified by E-codes using CDC's injury matrix standard definitions.

Analyses were for North Carolina residents ages 10 and older and for the sub-groups of youth and young adults (ages 10 to 24 years), veterans (ages 18 and older), and older adults (ages 65 and older). Analyses included: 1) number of suicides, hospitalizations or emergency visits; 2) percent of total suicides, hospitalizations or emergency visits by specific demographic characteristics; and 3) rate of suicides, hospitalizations or emergency visits by demographic characteristics, where possible. Demographic characteristics for suicides were age, gender, race, Hispanic/non-Hispanic, marital status, years of completed education and North Carolina county. Because race and Hispanic/non-Hispanic ethnicity were separate demographic characteristics, race categories included both Hispanics and non-Hispanics. Demographic characteristics for self-inflicted injury data were limited to age, gender and North Carolina county.

Crude rates were calculated as the number of suicides, hospitalizations or emergency visits during the specified time period per 100,000 N.C. residents. (For example, crude suicide rate = [number of suicides x 100,000]/ N.C. population.) Demographic-specific rates were calculated as the number of suicides, hospitalizations or emergency visits in the demographic category during the specified time per 100,000 N.C. residents in the demographic category. (For example, age-specific suicide rate = [number of suicides in specified age group x 100,000]/ N.C. population in specified age group.)

N.C. veteran suicide rates were calculated using the VetPop 2007 file from the U.S. Department of Veteran Affairs. All other rates were calculated using bridged N.C. population data (vintage 2008) from the National Center for Health Statistics. Yearly and aggregate rates were evaluated. Denominators for aggregate rate calculations were the population estimates over the specified time (e.g., 2004-2008 for suicides and hospitalizations; 2006-2008 for emergency department visits.)

Age-adjusted rates per 100,000 persons were standardized to the 2000 U.S. population, as described in Klein and Schoenborn (2001). For each age group, an age-adjustment weight was calculated based on the number of persons in the age group in the U.S. standard population divided by the total number of persons in the U.S. standard population for all ages of interest. The age-adjustment weight for each age group was multiplied by the age-specific rate for that age group in the N.C. population. Then, the adjusted rate for each age group was summed to calculate the overall adjusted age-adjusted rate for all ages of interest.

Years of Potential Life Lost

Years of potential life lost from suicide in North Carolina from 2004 to 2007 compared to the U.S. and to other causes of death were calculated directly using the CDC's WISQARS. The system calculates years of potential life lost as a measure of premature death before the age of 65 by subtracting each deceased person's age at death from 65 and adding the number of years lost for all deceased people in that category. Calculations included the number of years of potential life lost and the age-adjusted rate of years of potential life lost per 100,000 persons with standardization to the U.S. population in 2000. This measure using age 65 is a conservative estimate since life expectancy was greater than 65 years for white and black males and females in the U.S. in 2006 (Arias, 2010).

Hospital Charges Calculations

Hospital charge estimates were computed by summing the charges across all cases for self-inflicted injury. It is important to note that hospital charges reflect only a part of the cost of injuries. Physician charges, emergency vehicle services, out-patient drug charges, medical equipment and time lost from work were not included in this report. All charges were reported in that year's dollars and were not adjusted for inflation. Hospital charges also reflect contracts that hospitals have with insurance companies.

Data Use Caveat

Findings in the report are based on rigorous data collection and analysis. However, counts that are small (less than 20) must be interpreted with caution, particularly when they are used in the calculation of suicide rates. Small numbers, even if they are not used in the calculation of rates, have substantial variation over time (i.e., a large standard error). This report presents rates for cases where there are at least five deaths, hospitalizations or emergency visits; however, rates for counts less than 20 should be interpreted with extreme caution when making comparisons or assessing trends over time. An asterisk (*) in the rate cell indicates the number of deaths was too small to support the calculation of a rate. A good way of determining significance of rates is to use the 95 percent confidence interval (95% CI) provided. The wider the confidence interval (i.e., the greater the difference between the lower and upper bounds of the confidence interval), the less accurate the rate is, and therefore, more caution should be employed when using the data.

Appendix C: Suicide Prevention Resources

Suicide Prevention Resource Center (SPRC)

Education Development Center, Inc.

55 Chapel Street

Newton, MA 02458-1060

Phone: 877-GET-SPRC (877-438-7772); **Fax:** 617-969-9186; **TTY:** 617-964-5448

Email: info@sprc.org

Web: www.sprc.org

North Carolina State Government Suicide Prevention Resource

Jane Ann Miller, MPH, Violence Prevention Program Consultant

North Carolina Department of Health and Human Services

1915 Mail Service Center

Raleigh, NC 27699

Phone: 919-707-5430

Email: Jane.Miller@dhhs.nc.gov

National Center for Injury Prevention and Control (NCIPC)

Centers for Disease Control and Prevention

Mailstop F63

4770 Buford Highway NE

Atlanta, GA 30341-3717

Phone: 800-CDC-INFO/(800-232-4636); **TTY:** (888) 232-6348 24 Hours/Every Day

Email: cdcinfo@cdc.gov

Web: www.cdc.gov/injury

N.C. Injury and Violence Prevention Branch

Chronic Disease and Injury, North Carolina Division of Public Health

North Carolina Department of Health and Human Services

1915 Mail Service Center

Raleigh, NC 27699-1915

Phone: (919) 707-5425; **Fax:** (919) 870-4803

Email: beinjuryfreenc@ncmail.net

Web: www.communityhealth.dhhs.state.nc.us/injury

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